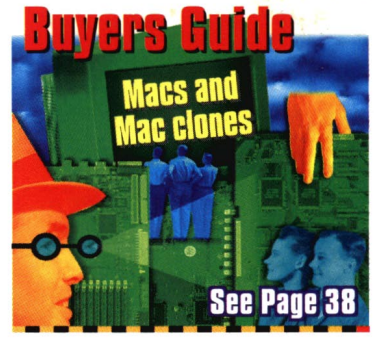
MacWEEK

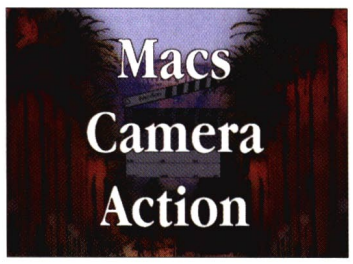


01.22.96 | *The Newsweekly for Macintosh Managers* | VOLUME 10 NUMBER 3

QuickTime to mix in 3-D, software MPEG

By Andrew Gore

In an unprecedented move, Apple last week invited key developers, value-added resellers and users to help determine how to turn QuickTime into a high-end digital video standard. New features slated for the next release this spring include support for 3-D objects and software MPEG. Also in the offing is a new standard for Motion-JPEG.



Apple said it is pushing QuickTime into the professional digital video and movie-production markets.

"Based upon what we heard at the conference, we hope to make 2.2, or whatever we ultimately name the next version, the first of a series of updates that will aggressively move QuickTime into the high end of video production and broadcast," said Carlos Montolvo, director of products and solutions for Apple's entertainment division.

One major new feature is the integration of QuickDraw 3D tracks. In the next version of QuickTime, which QuickTime Engineer Peter Hoddie said is "on the hairy edge of alpha" and is expected to ship in May, users will be able to load a QuickDraw 3D object, manipulate it, animate it in a 3-D space, change lighting, and even have other QuickTime sprites move around or behind it.

When the movie is saved, it will retain all 3-D attributes;

See QuickTime, Page 102

StyleWriters to raise roof on color resolution

By David Morgenstern and Matthew Rothenberg

Turning a new page in color inkjet output, Apple has two printers slated to ship in March.

Sources said the Color StyleWriter 2500 will push the envelope for color resolution to compete with Epson America Inc.'s inkjets, while the entry-level Color StyleWriter 1500 will vie with Hewlett-Packard Co.'s least-expensive models.

In addition, Apple is reportedly considering ambitious bundling strategies for both printers.

The Color StyleWriter 2500 will replace the company's popular $429 Color StyleWriter 2400

See Inkjets, Page 102

Apple lays off 1,300 after loss

By Jon Swartz

Apple last week slashed 1,300 jobs and hinted at further cuts on the heels of reporting a $69 million loss. The bad news doesn't end there: It also announced a restructuring charge of $125 million that will result in a loss for the current quarter.

"Just because Apple won't be everything to everyone doesn't mean that the Mac platform won't be."
— Satjiv Chahil, Apple

Sales for the first quarter were a record $3.15 billion, up 11 percent from $2.83 billion for the same quarter a year ago. Apple also shipped a whopping 1.3 million units, 1 million of them Power Macs, during the three-month period ended Dec. 29, 1995.

But shrinking gross margins, caused by personal computer price wars in the United States and Japan, were responsible for the quarterly loss and restructuring charge, Apple said. Its first-quarter margins were 15.1 percent, compared with 20.7 percent in the previous quarter and 28.7 percent in the same quarter a year ago. In the same quarter last year, Apple posted a profit of $188 million.

"We cannot continue to oper-

See Results, Page 104

Apple technology group gets handle on products

ATG's projects to bear new fruit

By Joanna Pearlstein

Deep within the Apple campus, a small group of scientists is developing technologies it hopes will sharpen the company's technical edge. While not all its efforts graduate to prime time, some of the work by Apple's Advanced Technology Group has been hailed as keystones of innovation.

According to sources, ATG is currently working on projects that include the search engine in Copland, object-oriented programming (OOP) tools, system software aimed at the educational market and easy-to-use multimedia applications.

Several ATG undertakings have found their way into consumers' hands. They include QuickTime VR; QuickDraw 3D; ColorSync; Rosetta, handwriting recognition technology in Newton 2.0; and the recently released Chinese Dictation Kit.

Sources said several of ATG's latest initiatives will be incorpo-

See ATG, Page 104

Extreme 3D no revolution, but it's a solid piece of work

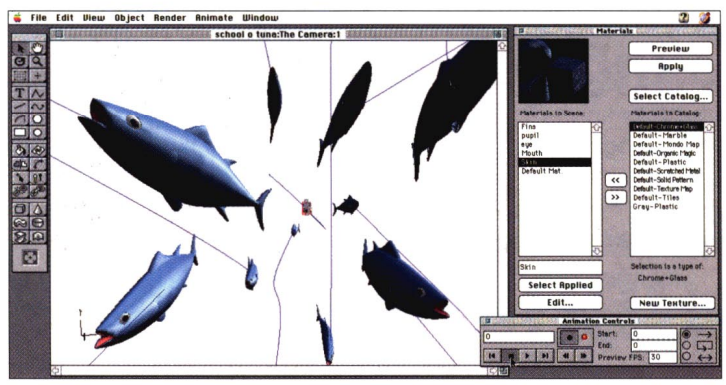
By Sean Wagstaff

Beta Test

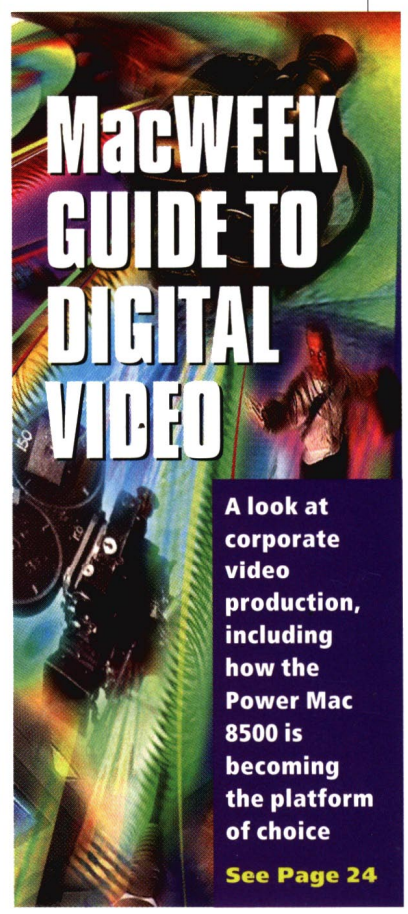
Macromedia Inc.'s Extreme 3D won't turn the 3-D world on its ear, but it's a solid, one-stop solution for multimedia 3-D animators. We looked at a late beta of the $699 spline-based modeler and event-based animator. Due to ship next month, it replaces all of Macromedia's older 3-D tools.

Extreme 3-D is cross-platform, with binary-compatible files on Mac, Windows and Windows NT machines. In addition, a new distributed-rendering architecture lets you install as many copies as you have Macs or Intel-standard PCs on your network and render using the power of all of the machines simultaneously. You cannot use more than

See Extreme 3D, Page 102



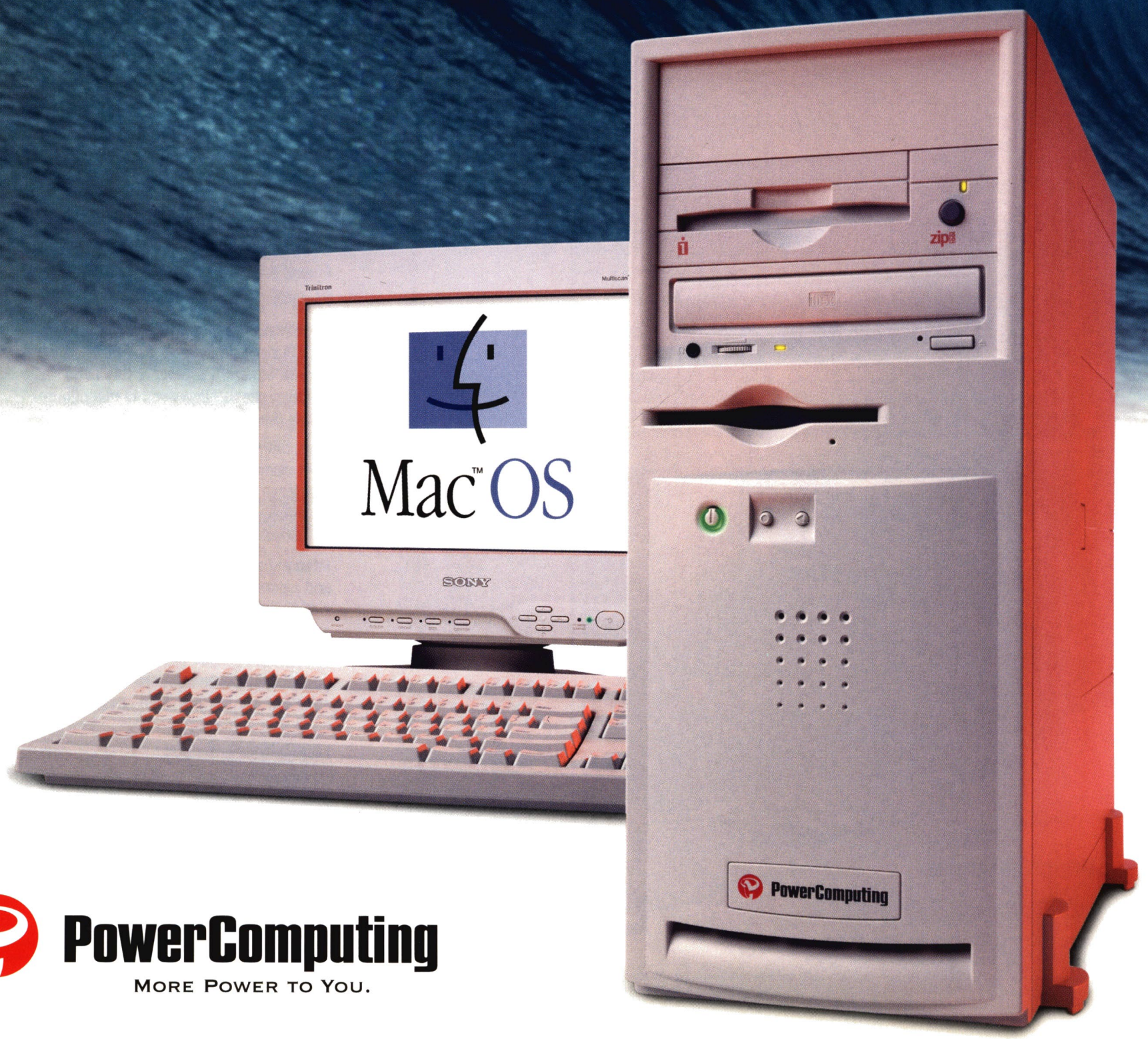
Extreme 3D offers spline modeling and a full set of animation controls. Objects and individual points of objects can be animated along spline paths.


MacWEEK
GUIDE TO
DIGITAL
VIDEO
A look at corporate video production, including how the Power Mac 8500 is becoming the platform of choice
See Page 24

NEWSPAPER SECOND CLASS

INTRODUCING **POWERWAVE** FROM

POWER COMPUTING DESIGNED TO BLOW YOUR MIND NOT YOUR BUDGET.



PowerComputing

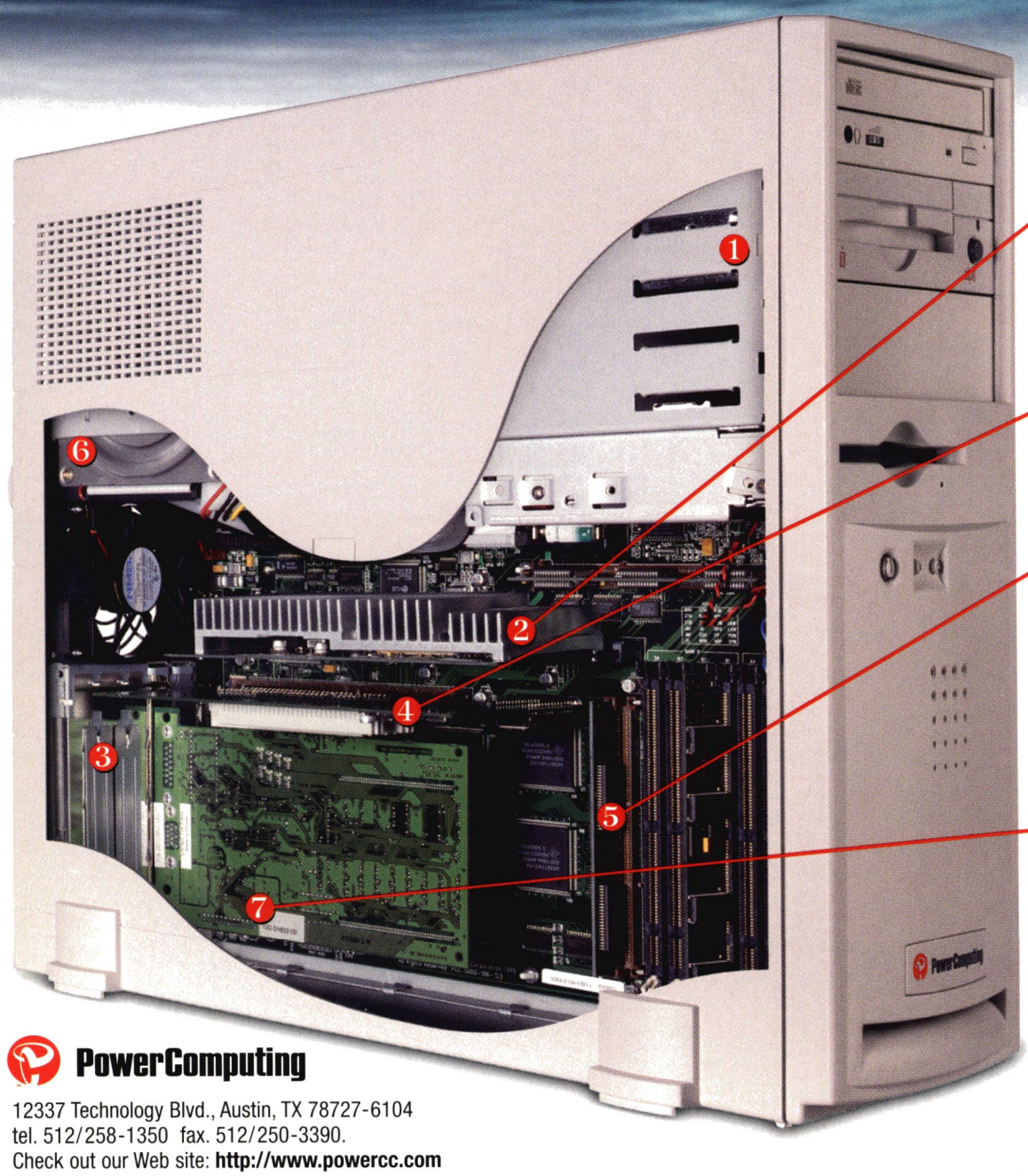
MORE POWER TO YOU.

Power Computing Introduces Fastest MacOS System Ever

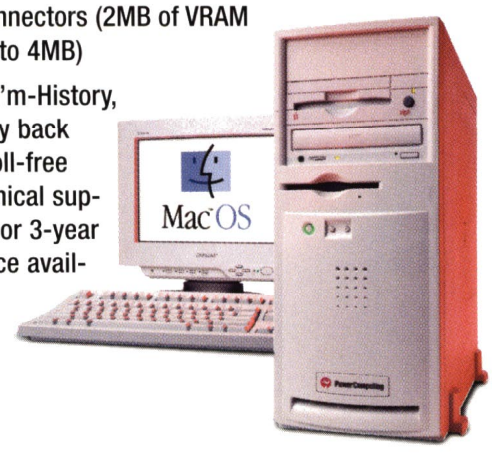
150MHz PowerPC 604

Fast PCI and NuBus Expansion

Accelerated 64-bit PCI Video and Fast SCSI



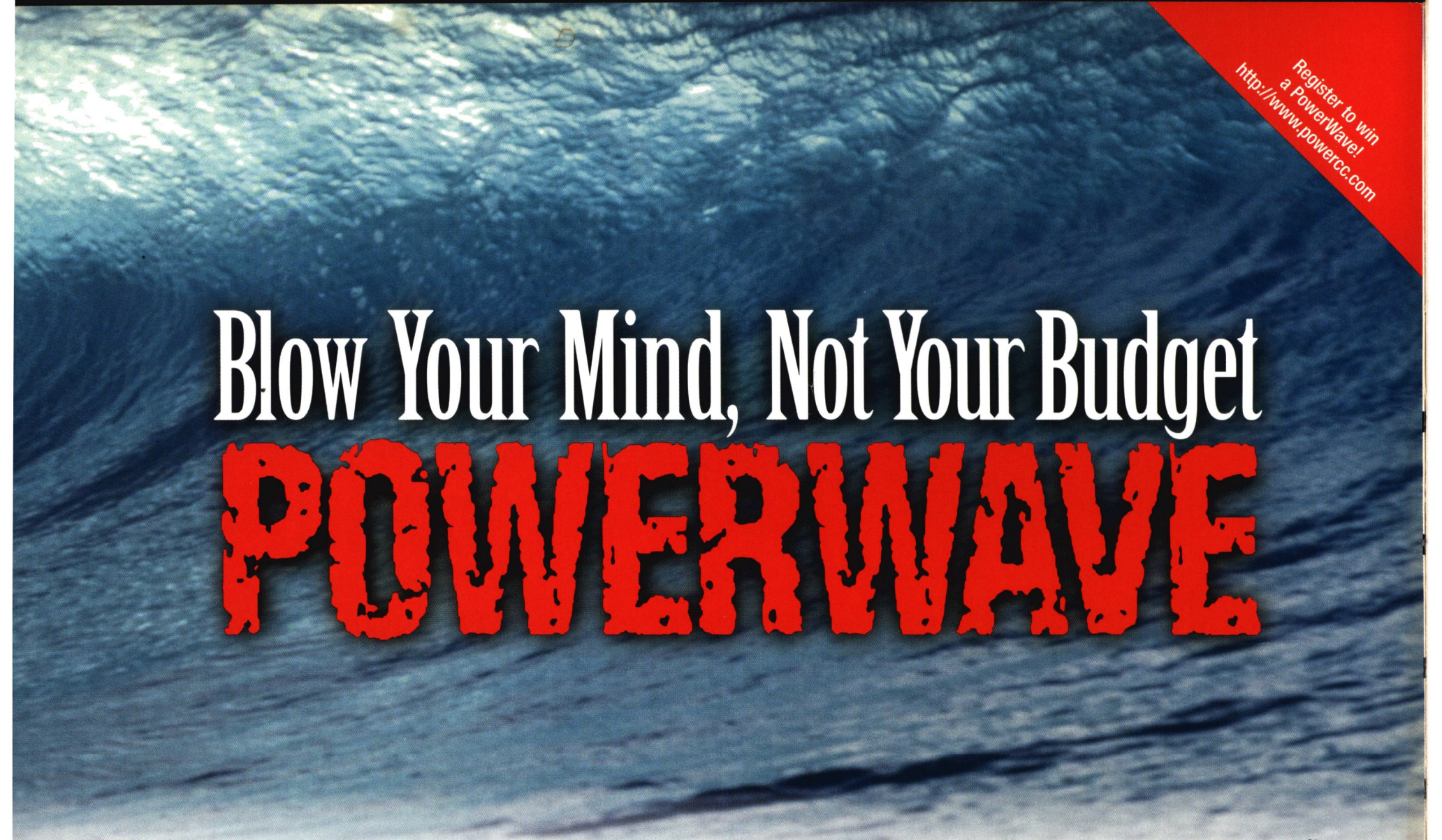
1. 3 Front Accessible Drives for optional Quad-Spin (4X) CD-ROM, Iomega Zip, Iomega Jaz, or SyQuest EZ-135
2. Easily upgradeable Plug & Play CPU daughtercards featuring the PowerPC 604 at 120, 132 and 150MHz
3. Fast PCI 3-slot expansion
4. Need NuBus? Get both PCI and NuBus with Power Computing's STARGATE Choose either 3 PCI slots or 2 PCI and 2 NuBus slots - allows you to reconfigure at any time from NuBus to PCI
5. Eight DIMM slots for up to 512MB of RAM using 64-bit DIMMS with fast interleave memory; Socketable High Performance L2 DIMM Cache Slot allows for either 256K, 512K or 1MB
6. Internal Fast SCSI Bus (up to 10MBs/sec) and external SCSI Bus (up to 5MB/sec) as well as Internal Drive Bays for additional storage
7. Accelerated 64-bit PCI VRAM video graphics card with both Mac 15-pin and SVGA connectors (2MB of VRAM upgradeable to 4MB)
8. Love-Me-Or-I'm-History, 30 day money back guarantee. Toll-free lifetime technical support. 1, 2, or 3-year on-site service available, starting at only $49.



PowerComputing

12337 Technology Blvd., Austin, TX 78727-6104
tel. 512/258-1350 fax. 512/250-3390.
Check out our Web site: **http://www.powercc.com**
Internet: info@powercc.com

Apple, Macintosh and Mac are registered trademarks, and the Mac OS logo is a trademark of Apple Computer, Inc. PowerWave is a trademark of Power Computing Corporation. All other brand or product names are the property of their respective holders. Prices and specifications are valid in the US only and subject to change without notice.



MacWEEK - APRIL '95 · MacUser/ZD LABS MacUser - AUG. '95 · MACUSER EDITORS' CHOICE AWARD 1995 FINALIST · MW ★★★★ Macworld - AUG. '95 · PC MAGAZINE LABS PC Magazine - AUG. '95 · TEST CENTER INFOWORLD HOT PICK Infoworld - JUNE '95

Editor's Rave!

"Considering the purchase of a PowerMac?...We strongly recommend that you take a serious look at what Power Computing has to offer."
MacUser- Aug 95

"They might as well have come from Apple - the performance and compatibility are that good."
Macworld- Aug 95

"...an excellent Mac alternative, whether or not you are pinching your pennies."
PC Magazine- Aug 95

"Power Computing's systems match their PowerMac counterparts for speed and compatibility and are every bit as good as a dyed-in-the-wool Macintosh."
Infoworld- June 95

"A machine we love even more than the PowerMac 7500 - the PowerWave 604"
Macworld- Feb 96

MW EDITORS' CHOICE · MW ★★★★

"The Power Computing PowerWave 604 is a very impressive Macintosh"
New York Times, November 7, 1995

PowerCurve 601/120 Starter
120 MHz PowerPC™ 601+

8MB RAM (256MB Max RAM)
Upgradeable CPU daughtercard
Optional Level 2 Cache (1MB Max)
850MB 11ms SCSI Hard Drive
3 Fast PCI Expansion Slots
Built-in Ethernet (10Base-T & AAUI)
Built-in Graphics w/1MB VRAM upgradeable to 4MB VRAM
Extended Keyboard & Mouse
Bundled Software

NEW! **$1899**

PowerWave 604/120 Starter
120MHz PowerPC™ 604

16MB RAM (512MB Max RAM)
Optional 256K, 512K, or 1MB Cache
1.0GB 11ms SCSI Hard Drive
Quad-Speed (4X) CD-ROM Drive
3 Fast PCI Expansion Slots
Built-in Ethernet (10Base-T & AAUI)
64-bit PCI Graphics w/2MB VRAM
Desktop Computer Case
Extended Keyboard & Mouse

$3199

PowerWave 604/120 Home Office
120MHz PowerPC™ 604

16MB RAM (512MB Max RAM)
Optional 256K, 512K, or 1MB Cache
1.0GB 11ms SCSI Hard Drive
14 inch .28 DP Monitor
Quad-Speed (4X) CD-ROM Drive
Internal Iomega Zip™ Drive
3 Fast PCI Expansion Slots
Built-in Ethernet (10Base-T & AAUI)
64-bit PCI Graphics w/2MB VRAM
Extended Keyboard & Mouse

$3599

OVER $1200 OF FREE SOFTWARE
*BUNDLED WITH EVERY SYSTEM

Mac OS 7.5.2
Insignia Soft Windows 2.0 60 day trial, Grolier's Multimedia Encyclopedia, Now Utilities, Now Up-to-Date, Now Contact, Intuit's Quicken, FWB HardDisk Toolkit PE, CD-ROM Toolkit, ClarisWorks, America Online, 250 Bitstream Fonts, Launch CD, US CD Atlas, World CD Atlas, The Animals CD-ROM, Nisus Writer

FREE

PowerWave 604/132 Hot Pick
132 MHz PowerPC™ 604

16MB RAM (512MB Max RAM)
256K Level 2 Cache (1MB Max)
1.0GB 11ms SCSI Hard Drive
Quad-Speed (4X) CD-ROM Drive
3 Fast PCI Expansion Slots
Built-in Ethernet (10Base-T & AAUI)
64-bit PCI Graphics w/2MB VRAM
Extended Keyboard & Mouse

$3699

PowerWave 604/132 MultiMedia
132 MHz PowerPC™ 604

24MB RAM (512MB Max RAM)
256K Level 2 Cache (1MB Max)
1.0GB 11ms SCSI Hard Drive
14 inch .28 DP Monitor
Quad-Speed (4X) CD-ROM Drive
3 Fast PCI Expansion Slots
Built-in Ethernet (10Base-T & AAUI)
64-bit PCI Graphics w/2MB VRAM
Tower Configuration
Extended Keyboard & Mouse

$4299

PowerWave 604/150 Hot Pick
150 MHz PowerPC™ 604

16MB RAM (512MB Max RAM)
512K Level 2 Cache (1MB Max)
1.0GB 11ms SCSI Hard Drive
14 inch .28 DP Monitor
Quad-Speed (4X) CD-ROM Drive
3 Fast PCI Expansion Slots
Built-in Ethernet (10Base-T & AAUI)
64-bit PCI Graphics w/2MB VRAM
Tower Configuration
Extended Keyboard & Mouse

$4799

PowerWave 604/150 XL
150MHz PowerPC™ 604

32MB RAM (512MB Max RAM)
512K Level 2 Cache (1MB Max)
1.0GB 11ms SCSI Hard Drive
15 inch Sony Monitor
Quad-Speed (4X) CD-ROM Drive
Internal Iomega Zip™ Drive
3 Fast PCI Expansion Slots
Built-in Ethernet (10Base-T & AAUI)
64-bit PCI Graphics w/4MB VRAM
Extended Keyboard & Mouse

$5899

Service & Support

30 day money back, Love-Me-Or-I'm-History guarantee.
Toll-free lifetime technical support.
1, 2, or 3-year on-site service available, starting at $49.

Go Configure!

Since Power Computing is the manufacturer, you can customize your RAM, hard drive, video and monitor options – just call.

ORDER DIRECT AND SAVE
1-800-404-7693

PowerComputing™
MORE POWER TO YOU.™

MacWEEK

01.22.96 VOLUME 10 NUMBER 3

4 UP FRONT

Executor runs Mac apps on Intel PCs • First Mac plug-ins for Navigator • MacWEEK's Robert Hess, 1966-1996

6 NEWS

Digital uncrates Colorwriter • Dynamem ships 128-Mbyte SIMMs • Microtek unveils ScanMaker E3 • Micropolis debuts RAID bundles • Printer Beat

12 GA

French 3-D software reaches U.S. shores • Focus On: Object-oriented multimedia • Number Nine, IMS board PCI bus

16 GATEWAYS

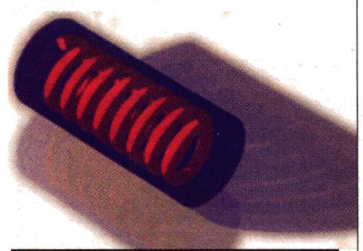
ProVUE ships major update to Panorama • Collabra Share Mac client finally arrives • Focus On: The war for wireless dollars

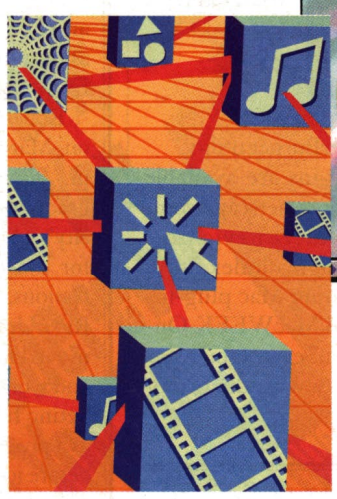
24 SPECIAL REPORT

Digital video production comes in-house, offering creative control and cost savings.

There's more for the average user in today's multimedia presentations. See Solutions, Page 71.

Ray Dream Studio offers animation at the right price. See Reviews, Page 67.





Director prevails as other object-oriented apps try to catch up. See GA, Page 12.

38 BUYERS GUIDE

Changes in Mac CPUs give users a wide range of options and more bang for the buck.

67 REVIEWS

Ray Dream Studio combines 3-D, animation • Big Business 1.0 offers centralized data, slow performance • In Brief: Jabra for Macintosh

71 SOLUTIONS

Easier software means you don't always have to rely on a pro to create lively presentations.

DEPARTMENTS & OPINION

20	Editorial	**71**	MacInTouch
20	Second Decade	**104**	StockWatch
21	Letters	**106**	Mac The Knife
21	Mac Manager		

ALSO INSIDE

73	Mail Order	**105**	Ad Index
87	MarketPlace	**105**	Product Index

MACWEEK INSIDER JAMES STATEN

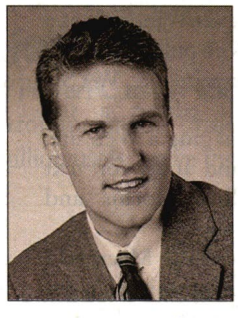
Here comes the Sun

Every time Apple has a bad quarter, takeover rumors percolate to the surface. The usual suspects are AT&T Corp., IBM Corp., Oracle Corp. and Motorola Inc. Last year Hewlett-Packard Co. and Sony Corp. joined the list.

IBM and AT&T have enough troubles. Motorola doesn't want to own its best chip customer. And HP and Sony, who are already in the Intel-standard clone business, just don't make sense.

The only type of company likely to buy Apple is one that is thirsty for Apple and has an idea of how to integrate Apple's technologies into its current product lines.

Now I don't profess to have any inside information and don't want anyone reading this column to turn it into rumor, but one company that might make a good fit is Sun Microsystems Inc.



Sun owns more than 30 percent of the worldwide workstation market but barely has a presence in the mainstream business and consumer channels. It sells hardware that ranges in price from $5,000 to $150,000, including laptops, but has hardly made a dent in these markets beyond offering high-performance servers.

Its operating systems, SunOS and Solaris, are everything the Mac OS hopes to be when it grows up; unfortunately both lack the Mac's friendly interface. And because Sun's systems are Unix-based, the perception is that Solaris and SunOS are counterintuitive, requiring on-staff programmers to configure even minor aspects of the environment.

Grafting the Mac interface onto Solaris would create a high-powered OS that is much easier to use and gives Mac users access to a truly threaded, multitasking, multiprocessing OS with protected memory spaces. The best part is such a face lift already exists: Macintosh Application Environment for Solaris is said to be doing very well for Apple and Sun.

While a complete merger between System 7.5 and Solaris would be far off, a two-tiered attack similar to the one Microsoft Corp. has with Windows 95 for the low-end and Windows NT for the guru would be a natural one.

Plus, like everyone else who refuses to pay homage to the Digital Zeus atop Mount Redmond, Sun can see the distant sails of the Windows fleet as it begins to encroach on Sun's territory.

Grafting the Mac interface onto Solaris would create a high-powered OS.

Nabbing Apple would give Sun a complete product line covering the first-time buyer on up to the high-level scientist. A united front of Sun and Apple would provide users with a best-of-both-worlds solution that runs on Intel, PowerPC and SPARC-based (at least in the short term) machines from a variety of hardware vendors and offers a unified solution and migration path for users.

Even Sun and Apple's market strengths are complementary. Apple has a sizable share in the education market; Sun has a strong presence in the higher-education, engineering and scientific fields. Apple is a force in the publishing and multimedia markets, while Sun provides high-end publishing, video and 3-D modeling solutions. Both companies offer strong Internet platforms.

Sun would also pick up a customer base of 22 million Mac users — a big jump from the 2 million in its Rolodex today.

Gaining Apple's pioneering technologies such as QuickTime and QuickDraw 3D would help Sun in its fight with Unix competitor Silicon Graphics Inc. Plus, the company would be happy to pick up the multimedia, television and film production customers Apple has.

Sun's financial resume as a suitor is stellar. It has more than $1 billion in the bank and virtually no debt. Its products carry a high margin, like Apple's used to, and Sun has had more time in the saddle with its licensing strategy and might be more willing to pass the low-end hardware business to clone vendors.

One snag makes this merger little more than wishful thinking. Sun lacks a positive track record selling to the mainstream market. Then again, Apple hasn't figured this one out either. □

James Staten is associate editor/on-line. He can be reached at james_staten@macweek.com.

MacWEEK (ISSN 0892-8118) is published weekly, with the exception of Jan. 1, July 1, Sept. 2, and Dec. 23 and 30, by Ziff-Davis Publishing Co., 1 Park Ave., New York, N.Y. 10016. Single-copy price, including postage: $6. One-year subscription rate: U.S., $125; Canada/Mexico, U.S. $225; International, U.S. $350 (airmail). All orders must be prepaid. Direct **subscription inquiries** to Customer Service Department, MacWEEK, c/o JCI, P.O. Box 10634, Riverton, N.J. 08076-0634; (609) 786-8230. **Changes of address** require that a new application be filled out completely and include both new and old addresses. Allow four to six weeks for processing. We periodically make lists of our customers available to carefully screened mailers of quality goods and services. If you do not wish to receive such mailings, please let us know by writing to us at Customer Service Department, MacWEEK, P.O. Box 10634, Riverton, N.J. 08076-0634. **Postmaster:** Send address changes to MacWEEK, P.O. Box 10634, Riverton, N.J. 08076-0634. Second-class postage paid at New York and additional mailing offices. Printed in U.S.A. Canada Post International Publications Mail Product (Canadian Distribution) Sales Agreement No. 410667. Canadian GST registration number is R140496720.

Navigator gets plug-ins

Vendors shipping betas of Web apps

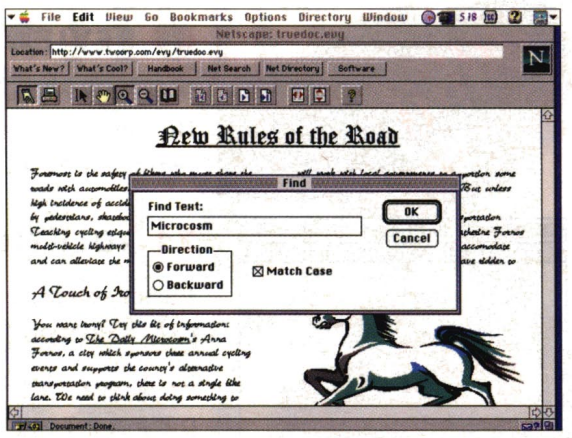
By James Staten

The first wave of plug-ins for the Mac version of Netscape Navigator 2.0 have begun to arrive.

Tumbleweed Software Corp. of Redwood City, Calif., and Progressive Networks Inc. of Seattle last week released plug-ins for their portable-document and streaming-audio technologies, respectively. Macromedia Inc. of San Francisco will post its Shockwave plug-in this month.

All plug-ins are in beta versions.

Tumbleweed's Envoy plug-in lets Web users view compound documents saved in Novell Inc.'s Envoy portable document format. The plug-in provides search, zoom and thumbnail view tools.



Tumbleweed's Envoy plug-in lets Netscape Navigator 2.0 users view compound documents saved in Novell's Envoy portable document format.

Progressive Network's RealAudio 2.0 plug-in, available for Power Macs only, provides support for audio streams embedded in an HTML document. When used, the RealAudio controls appear in the Web page.

Macromedia's Shockwave plug-in will let users view embedded Director files compressed by the company's AfterBurner utility.

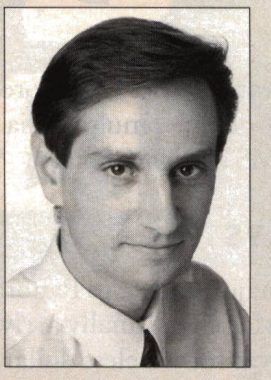
All the plug-ins are available from http://home.netscape.com/comprod/products/navigator/version_2.0/plugins/index.html.

A list of coming Mac plug-ins can be found in MacWEEK Online on CompuServe (go: macweek) or http://www.zdnet.com/~macweek. □

Robert Hess: 1966-1996

MacWEEK Associate Editor/Gateways Robert Hess died in San Francisco Friday morning, Jan. 12, of complications from pneumonia. He was 29.

"Robert looked at reporting as an adventure," said MacWEEK Editor in Chief Mark Hall. "He saw the facts as stepping-stones to the truth, and he saw the truth as the purpose for his reporting."



Robert was born on March 12, 1966, in Houston. After graduating from that city's High School for the Health Professions, he attended Rice University. He moved to San Francisco in 1991 and worked for EndPoint! Marketing Information Systems Inc. as a programmer and consultant before joining MacWEEK.

His talent for uncovering the computer industry's most closely guarded product plans and strategies quickly earned him a reputation as one of the top investigative journalists covering Silicon Valley. He rose rapidly through the MacWEEK ranks to become editor of Gateways.

"Every time I read Robert's writings, worked with him or spoke with him, I was very proud to be part of the media and part of the Macintosh industry," said Neil Ticktin, publisher of MacTech Magazine in Westlake Village, Calif.

Robert's abilities as both a programmer and a writer made him an important opinion maker in the Mac community; his columns in MacWEEK and his weekly on-line feature, "Out of Line," provoked and informed his many readers.

Robert was an active member of Digital Queers, an industry organization that promotes technology within the gay community. At its annual fundraiser in San Francisco the night after his death, DQ recognized Robert's contributions to the cause of human rights.

Robert is survived by his parents, Deborah and George Nuckolls of Texarkana, Texas, and Robert and Yvonne Hess of Houston; his brother, Bill Hess of Houston; his grandparents, Carl and Bebe Hess and Mildred Cox; and many aunts, uncles and cousins.

Donations in his memory may be made to Digital Queers, 584 Castro St., No. 560, San Francisco, Calif. 94114.

Executor ready to run Mac apps on Intel PCs

By David Morgenstern

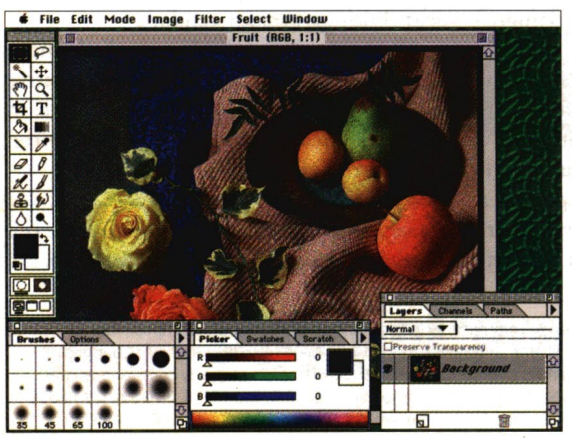
Pushing Mac software toward alien desktops, Abacus Research and Development Inc. will expand platform support for its Executor Mac emulator. Version 2.0 will run on Intel-standard PCs, in addition to the Unix and NeXT platforms currently supported.

The $249 software, due in March, will run most System 6-compatible applications, and many "well-behaved" System 7 programs. ARDI said a 90-MHz Pentium system will offer speedier performance than a Quadra 610 with a 25-MHz 68040 processor. A $99 "pre-beta" is available now.

ARDI said the updated emulator will read Mac floppies as well as hard drives. It will not support applications that depend on System 7.5 features such as QuickDraw GX or QuickTime. In addition, Version 2.0 will not provide network and serial connections.

According to ARDI, the emulator is aimed at cross-platform users and sites moving from the Mac to other platforms. Version 2.0 will support DOS, NeXTStep, OS/2, Windows 3.1, Windows 95 and Unix systems.

Abacus Research and Development Inc. of Albuquerque, N.M., can be reached at (505) 766-9115; fax (505) 766-5153; info@ardi.com; http://www.ardi.com. □



The black-and-white Apple menu, missing Application menu and stray artifact are the only indications that this Mac version of Adobe Photoshop is running on a Pentium machine.

AppWare finds a new owner

By Clifford Colby

AppWare, the cross-platform application-development system Novell Inc. put up for sale late last year, has found a new home.

According to sources, AppWare team members have formed their own company, which will acquire the system this month.

The head of the new company will reportedly be Ed Firmage, who was director of marketing for Novell's AppWare group. The company will reportedly maintain close ties to Novell.

Under its new owners, the tool will reportedly gain the capability to compile OpenDoc parts, acquire Internet hooks through support of Apple's Cyberdog and expand its multimedia capabilities. AppWare will retain its capability to create network-aware applications and will continue to support NetWare. A Power Mac version is expected in February.

"The engineering team will be top-quality guys — these are the people I'd want to see them keep," said a developer familiar with the new company's plans. "And the addition of Cyberdog makes the possibilities of what you can create exciting." □

Microsoft buys Vermeer

By James Staten

Employing the philosophy, "If you can't beat 'em, buy 'em," Microsoft Corp. last week acquired Vermeer Technologies Inc., author of Front Page.

The $695 Front Page, currently available on Windows, is a client-server Web publishing system that comprises a WYSIWYG HTML editor; a site viewer for managing a Web site; a to-do list; and tools for text searches, feedback forms and threaded discussions.

At this month's Macworld Expo, Vermeer committed to delivering a Mac version of Front Page, and Microsoft confirmed that those plans will not change.

Microsoft said Front Page will play a critical role in the company's Internet strategy. Vermeer's development team will move to Redmond, Wash., where it will become the core of a new Web authoring product unit within Microsoft's desktop applications division.

The company hinted at a bundle of Front Page and Microsoft Office and a drop in Front Page's price.

The acquisition places Microsoft in competition with Adobe Systems Inc., America Online Inc. and Netscape Communications Corp., which all offer Web-management tools.

Terms were not disclosed, but analysts estimated that Microsoft gave $130 million worth of its stock to Cambridge, Mass.-based Vermeer. □

It takes Timbuktu to tango.

New Timbuktu® Pro 2.0 for Macintosh sweeps you off your feet with built-in ARA!

UPGRADE JUST $49.95* NOW!

The Dynamic Duo

Farallon and Apple have teamed up to bring you NEW Timbuktu® Pro 2.0! The award-winning remote control software now comes with built-in Apple Remote Access for the ultimate in "anytime, anywhere" network access. You'll never have to worry again about accessing your office network or desktop from afar!

It's perfect for PowerBook users! Click a button, and you can dial-in to any ARA server right from within Timbuktu Pro. From your home or hotel, you'll have combined remote dial-up and remote control, giving you fast and easy access to e-mail, servers, printers, direct file transfer, and remote control with any computer back at the office.

Packed With New Features

Timbuktu Pro 2.0 is now PowerPC native and offers the highest-performance remote control imaginable through patented IntelliScreen™ technology. With over a million users, we've incorporated dozens of great ideas for the design of Timbuktu Pro 2.0. Drag-and-drop files to other users through a remote control window! Handy address books let you transfer files in the background to one or more users–even over the Internet! Send a FlashNote,™ an instant message that pops up on your colleagues' screen. A new customizable interface makes Timbuktu Pro easier than ever to use. Upgrade today, and see all the other great new features of Timbuktu Pro 2.0 such as MacIPX support.

Timbuktu Pro 2.0 for Macintosh is the comprehensive remote access solution you need, whether you're a road warrior, telecommuter, help desk manager, or part of a busy workgroup. And right now you can upgrade at an incredibly low price that will have even your accountant tapping his toes: **just $49.95 for a limited time.***

Purchase two or more upgrades, and get a FREE TWIN PACK OF MARATHON—the ultimate Macintosh game!

***Anyone using Timbuktu or Apple Remote Access can upgrade to version 2.0 for just $49.95. 30-day money back guarantee. Marathon offer good while supplies last. Call today!**

1-800-678-5075

Farallon®

http://www.farallon.com/www/tb2.mw.html

Mac OS · Accelerated for Power Macintosh · yes It runs with NetWare · INTERNET SAVVY

© 1995 Farallon Computing, Inc. Cross-platform screen-sharing technology in Timbuktu is covered by US Patent Number 5,241,625. All rights reserved. v.1195

Tango
FOR WEB DATABASES
http://www.everyware.com/ad1/
I'm not just a one night stand.
Explicit web advisory

Digital enters color laser race

New printer targeted at graphic arts users

By David Morgenstern

Looking to claim a slice of the upscale color market, Digital Equipment Corp. next week will release its Colorwriter LSR 2000, a color laser printer that uses a high-performance controller.

Aimed at graphic arts applications, the $13,999 Colorwriter LSR 2000 is based on the 600-dpi Canon engine used in Apple's Color LaserWriter 12/600 PS. It uses the new Fiery XJE RISC controller developed by Electronics for Imaging Inc. The 100-MHz XJE offers many features found in EFI's color-copier RIPs, including continuous printing and routines that let the RIP process one page while printing another.

According to Digital, the Colorwriter's controller is up to five times faster than competing color laser printers.

The model has a print speed of 12 pages per minute for black-and-white output and 3 ppm for CMYK output. It lets users adjust gloss levels and calibration settings.

The printer comes standard with 32 Mbytes of RAM that can be expanded to a maximum of 48 Mbytes. It will ship with a 341-Mbyte internal SCSI drive.

Using a PostScript Level 2 interpreter, the printer supports ColorSync 2.0, EfiColor and ICC (International Color Consortium) color-management systems.

The printer will automatically sense and switch among Centronics parallel, Ethernet and SCSI interfaces. It comes with 100- and 250-sheet input trays; an additional 250-sheet tray is $139.

Analysts said Digital may face challenges moving the Colorwriter LSR 2000 into the competitive color laser market.

"Digital has the best controller and a great engine for high-quality output," said analyst John Goetz with GIGA Information Group of Norwell, Mass. He said that while color quality is important, Digital is a newcomer to the graphics market. "Although the EFI controller is more sophisticated, Digital doesn't have well-established distribution in the channel," Goetz said. "Both Apple and Tektronix [Inc.] are solid with both business and [graphics applications] markets."

In addition, analysts said Digital will face competition from a similar Canon model with the EFI controller set to ship in the second quarter.

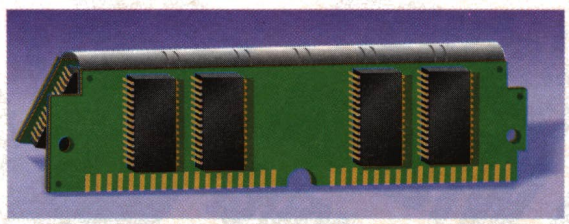
The high price of Digital's model could also be a problem for business sites and workgroups, according to analyst Paula Bursley with San Jose, Calif.-based Dataquest Inc. "The cost may be a tough nut for mainstream business users to swallow."

Digital Equipment Corp., Printing Systems Business, of Marlboro, Mass., can be reached at (508) 493-5111 or (800) 777-4343; fax-back (800) 777-4343. □

Dynamem raises RAM ceiling

By James Staten

Macs with four or fewer slots no longer have to suffer RAM envy thanks to Dynamem Inc. Breaking memory barriers, the company this month shipped Mac-compatible SIMMs with capacities of up to 128 Mbytes.



JOHN FARNSWORTH

Dynamem's FRAMMs are thin boards with RAM chips on both sides, folded over for a finished size that is only slightly thicker than a standard SIMM.

Previously, the highest capacity SIMM available was 64 Mbytes. A Mac model with four 128-Mbyte Dynamem SIMMs installed would have 512 Mbytes of RAM. Mac models with eight SIMM slots could house more than 1.2 Gbytes of memory.

The new 72-pin boards are built using a patented Foldable Rigid Assembly Memory Module (FRAMM) composed of two TSOP (thin small-outline package) memory cards attached at the top with a rigid hinge. TSOP memory is used primarily in laptops, including the PowerBook 500 series.

A 64-Mbyte module costs $2,363; a 128-Mbyte unit sells for $6,642. Dynamem predicted price drops of 15 percent to 20 percent by midyear.

Aimed at PCI-based Mac models, 168-pin FRAMM DIMMs (dual in-line memory modules) will ship in capacities of 64, 128 and 256 Mbytes near the end of the first quarter, Dynamem said. The current high-capacity DIMM is 128 Mbytes.

Dynamem Inc., a division of Palomar Medical Technologies Inc., of Tempe, Ariz., is at (619) 536-5963 or (800) 886-6369; fax (619) 536-5952; memking@aol.com. □

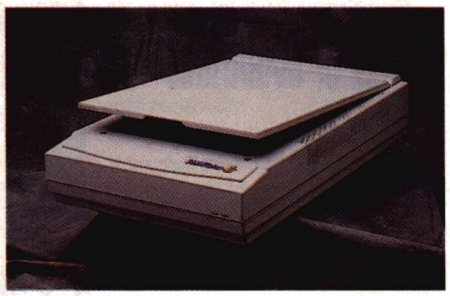
Microtek legalizes color

By Matthew Rothenberg

Microtek Lab Inc. this month is due to deliver a new low-cost color flatbed scanner for legal-size documents.

The ScanMaker E3, slated to ship for a suggested street price of $399, captures reflective originals measuring up to 8.5 by 13.5 inches, Microtek said.

The scanner includes a CCD (charge-coupled device) array that can capture 24 bits of RGB data per pixel in a single pass.



Microtek's ScanMaker E3 handles legal-size originals and will have a street price of $399.

It supports an optical resolution of 300 by 600 dpi, which can be increased to 2,400 by 2,400 dpi via software interpolation.

According to Microtek, the SCSI-2 device can scan a 5-by-7-inch image at 300 dpi in about 42 seconds.

The company said the ScanMaker E3 features a new lid design that blocks external light better than earlier models.

The ScanMaker E3 ships with Microtek's own ScanWizard scanning utility, which includes controls for brightness, contrast and exposure; tints; shadows and highlights; blur, sharpen and unsharp masking; gamma curves; and other image adjustments. It also comes with Caere Corp.'s OmniPage Direct OCR software and MicroFrontier Inc.'s Color It! 3.0 painting program.

Users can purchase a transparency adapter and a 10-sheet automatic document feeder for $599 and $199, respectively.

Microtek Lab Inc. of Redondo Beach, Calif., can be reached at (310) 297-5000; fax (310) 297-5050; http://www.mteklab.com/. □

Zip battery pack readied for spring

Iomega Corp. this spring will zip into mobile Mac storage. The company said it expects a second-quarter release of a battery pack for its Zip removable-cartridge drive.

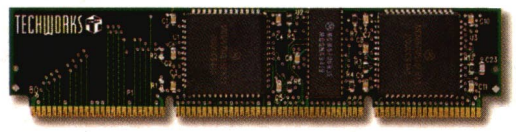
With a street price of about $50, the rechargeable pack will weigh 8 ounces and provide two hours of power, Iomega said. The unit, which is about the size of a deck of cards, will clip to the back of the drive and operate in both horizontal and vertical orientations. The pack will plug directly into a wall outlet for recharging.

Iomega Corp. of Roy, Utah, can be reached at (801) 778-1000 or (800) 697-8833; fax (801) 778-3190; info@iomega.com; http://www.iomega.com. □

WHAT'S YOUR MEMORY REALLY COSTING YOU?

All memory companies are not the same.

TechWorks has more than just good SIMM and DIMM prices. We save you money and time by exceeding your needs the first time around. Here's why TechWorks has been the recognized leader in Mac memory for almost ten years:



Quality Guarantee – TechWorks tests 100% of our products before they go out the door and backs them with a Lifetime Warranty and 24-Hour Replacement policy.

Support – TechWorks provides you toll-free, pre-sales and post-sales expert support.

Trade-In Program – TechWorks accepts all standard modules as trade-in.

Configuration Information – TechWorks offers a wide variety of programs for determining the right memory module: Internet on-line product selection; product selector books; simple pocket guide; faxback service; and TIPPS disk for your PC or Mac.

Credit – TechWorks provides several credit options: flooring, terms, or credit cards.

Education Series – TechWorks offers the following short, easy to read topics in printed, faxback and on-line formats, including: *Selecting the Right Memory, Cache Cards, VRAM,* and *EDO/Burst EDO Memory*.

Robust Packaging – TechWorks individually labels and packages every module for easy identification and safe delivery.

Availability – TechWorks ships all standard memory modules within 24 hours of order.

TechWorks participates in the Apple Developer Program so we can engineer and manufacture memory that works for you all the time. We have memory upgrades for old, faithful Macs, new PowerPC Macs, and Mac OS-compatible computers. Pick TechWorks and rest easy—each TechWorks memory module is rigorously tested and covered by our Lifetime Warranty. The choice is clear—call TechWorks and experience what the best value in the business can mean for you.

CALL 800-704-0189.

It'll always perform, or we'll replace it free.

Technical Support? We're here to help you for free.

Don't like it? Return it. It's just that simple.

Problem? We'll replace it via overnight delivery.

Cash-back for most SIMMs & DIMMs.

Mac™OS

TECHWORKS

Web Site at http://www.techwrks.com
Fax on demand: 800-285-3084

TechWorks, 4030 West Braker Lane, Austin, Texas 78759-5319. Business: 512-794-8533, Fax: 512-794-8520. TechWorks U.K., 4 Dolphin Square, Edensor Road, London, W42ST. Business: +44 (0) 181 490 9500, Fax: +44 (0) 181 490 9501.

Micropolis to ship arrays

By David Morgenstern

Aiming to take up residence in the entry-level market for RAID systems, Micropolis Corp. in February will release Raidion SpeedStack, a new line of software-controlled array packages.

Based on the company's Microdisk removable storage system, the $4,720 LT4200WAV and $5,800 LT8600WAV will come in capacities of 4.2 and 8.6 Gbytes, respectively. The systems will use pairs of Micropolis' 7,200-rpm mechanisms.

SpeedStack arrays will come with Trillium Research Inc.'s Remus Lite striping and mirroring software, Transoft Corp.'s SneakerNet utility and Adaptec Inc.'s 3940W Fast and Wide SCSI-2 PCI card. Micropolis said the systems support minimum and maximum sustained data transfer rates of 9.2 and 27.4 Mbytes per second, respectively.

Micropolis Corp. of Chatsworth, Calif., is at (818) 709-3300 or (800) 395-3748; fax (818) 709-3497; http://www.micropolis.com. □

SIMPLY ADVANCED COMMUNICATIONS

VICOM
Internet Gateway

Multi-users on a LAN have simultaneous Internet access while sharing one account.

There's no easier way to cut costs

Now, many users on a LAN can access the Internet instantly, easily, simultaneously through only one account. No need for multiple modems or one account per user, so savings can be considerable. Network managers can bar access to undesirable sites. Access, from the Internet can also be securely barred.

- Macs and PCs on Ethernet, TokenRing and LocalTalk networks share simultaneous Internet access.
- Easy to install, authorised users connected transparently.
- High security and access control.
- Supports all Internet, WWW and e-Mail applications, such as Netscape, Mosaic, Eudora and Fetch.

For more information visit our web site, or contact Vicom Technology:

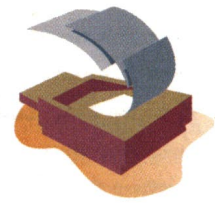
USA & Canada
Tel: 1-800 818 4266
Fax: 1-800 889 7235

Europe
Tel: +44 (0)1202 293233
Fax: +44 (0)1202 310241

eMail: sales@vicomtech.com

http://www.vicomtech.com

PRINTER BEAT



GDT updates. GDT Software Inc. of Burnaby, British Columbia, this month pulled up with a load of utilities and updates.

The company released a new version of its $299 PowerPrint/LT driver package. Version 3.0 is Power Mac-native, lets users access Novell NetWare-based printers and supports Hewlett-Packard Co.'s $599 4-page-per-minute LaserJet 5L printer. Users of Version 2.5 can upgrade for $99.

GDT also recently picked up Working Software Inc.'s printer utilities and bundled them together as PrintExtras. The $69 package includes PrintLogger, Toner Tuner, Working PrintStamper and Working Watermarker.

Users on the go with Magic Cap-based PDAs can print with GDT's PersonalPrint. Shipping next week, the $149 package includes a cable and drivers for more than 1,000 printers. Phone (604) 291-9121 or (800) 663-6222; fax (604) 291-9689.

Output stacks up. Xerox Corp. of Stamford, Conn., recently shipped a 1,000-sheet paper stacker for the Xerox 4900 and the XPrint 4915, 4920 and 4925 color laser printers. The $499 unit also enhances the 4925's collation capability, the company said. Phone (800) 349-3769; http://www.xerox.com.

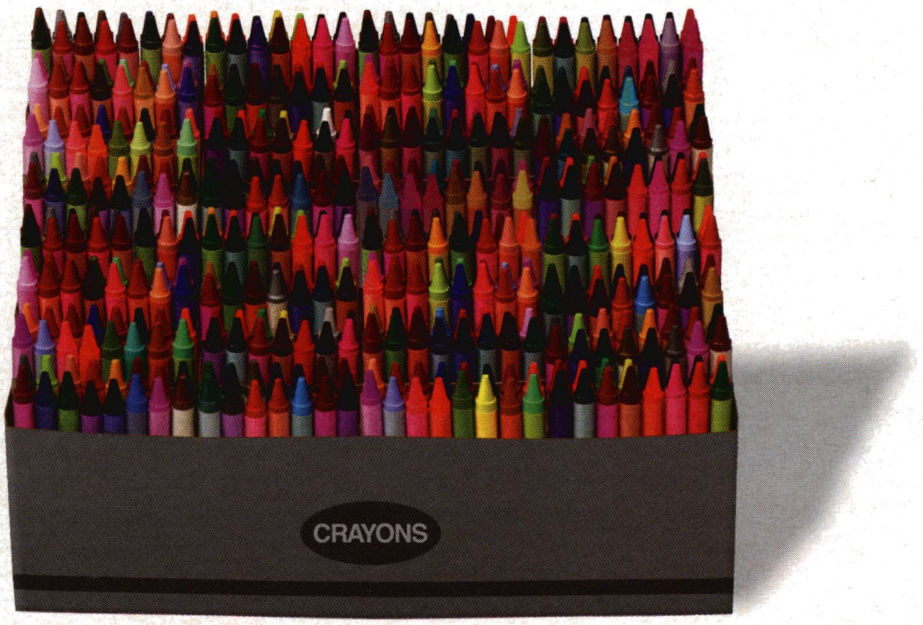
Hitting the spot darkly. Graphic Utilities Inc. of San Jose, Calif., recently shipped black-pigment ink for HP's DeskWriter 500 printer series and the DesignJet 650C plotter. The PermiDri inks are similar to the waterfast and lightfast formulations used with HP's newer inkjet printers. A single-refill kit for the 500 models is $16.95.

The company said it will offer similar color inks in the second quarter. The products are sold through office supply stores and catalogs. Phone (408) 577-0334; fax (408) 577-0348.

— By David Morgenstern

Some people scan in RGB

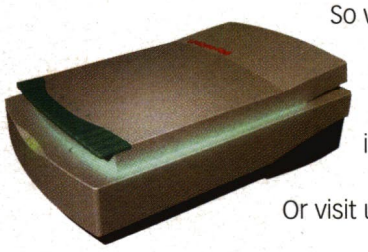
Some people scan in CMYK



Maybe you should see what happens when you scan in CIELAB

The only way to capture the maximum amount of color data from your original is to scan into the CIELAB color space. And the only way to scan in the CIELAB color space on your desktop is with the new SAPHIR scanner with LinoColor™ software, from the world leader in high-end color scanning: Linotype-Hell.

SAPHIR provides fast one-pass scanning and ColorSync® 2.0 compatibility. LinoColor software provides the most powerful color software ever put into a desktop system. Basically, it gives you the same color capabilities that prepress shops and printers have been using for years. Yet it's so easy to use that even novices can achieve professional-quality results in almost no time at all.



So why limit yourself? Get the full color you deserve. With SAPHIR and LinoColor. Only from Linotype-Hell. For more information, call 800-842-9721. In Canada, 800-668-0770. Or visit us on the Web at http://www.linotype.com

Linotype-Hell

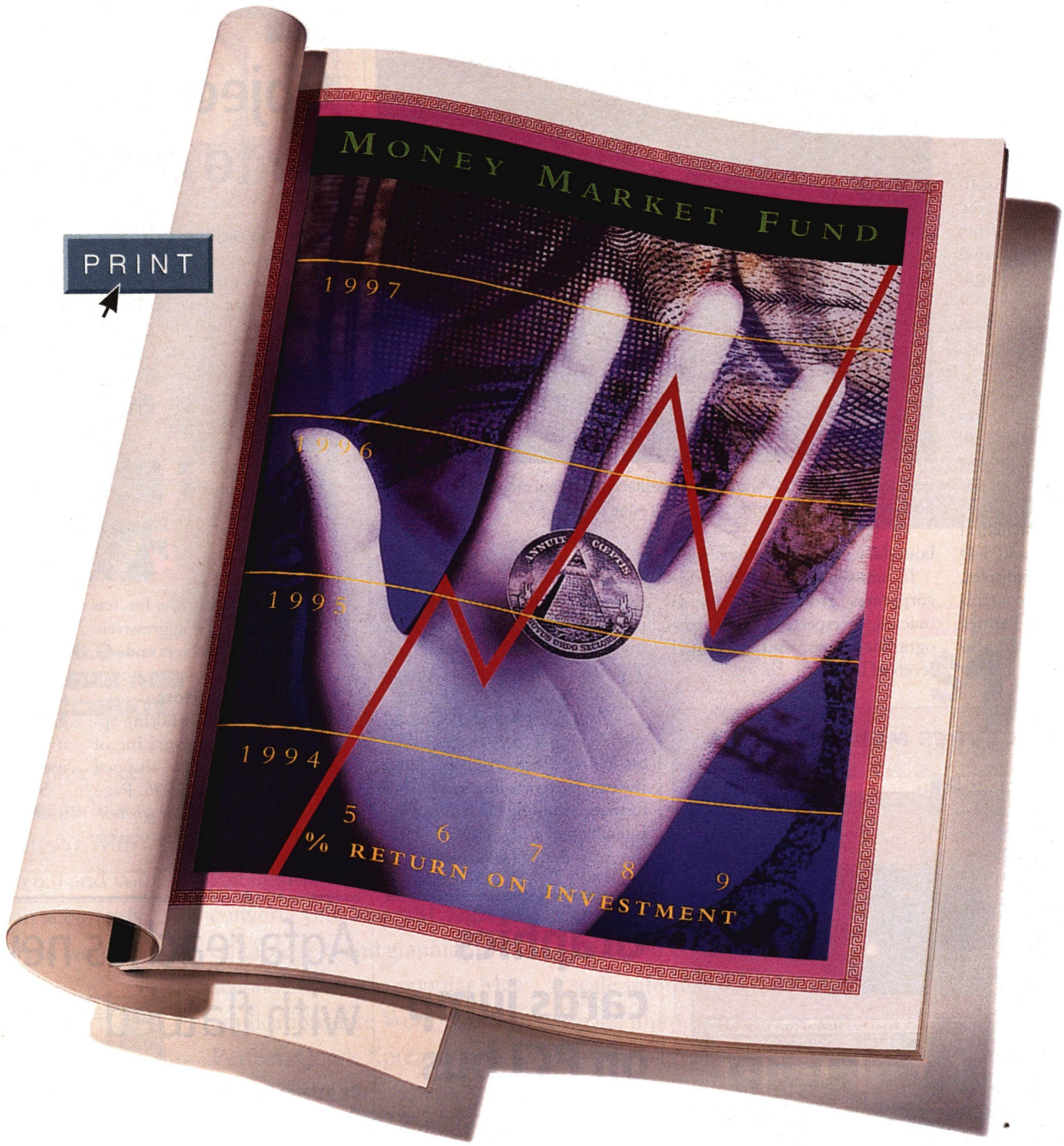
© 1995 Linotype-Hell Linotype and Hell are registered trademarks; LinoColor is a trademark of Linotype-Hell AG and/or its subsidiaries. ColorSync is a registered trademark of Apple Computer, Inc.

MACUSER EDITORS' CHOICE AWARD 1995 WINNER

You
brought
them
Windows®
and
e-mail
and
the internet.

Isn't it time you
brought them
lavender,
fuchsia
and
jade?

EPSON COLOR INK JET PRINTERS. *It's not easy to drag the hesitant masses into the future. But it sure is fun. Seeing their eyes go wide. Hearing their expressions of murmured awe. You're standing on the mountain; you can see the promised land. So, where will you lead them? How about into a world of inspiration? Of expression. A world of 720 x 720 dpi of intense, Photo Quality color, and laser caliber text. It's Epson's world. All it takes to get there is about $449 and a little vision. Call 1-800-BUY-EPSON x3400 or see http://www.epson.com.*



The line of Epson color printers starts at $449. Get one, get 720 x 720 dpi of Photo Quality Epson Color, and enter an age of experimentation, kaleidoscope color, unbridled creativity. (And you thought the '60s were over.)

YOU'VE GOT TO SEE IT IN EPSON COLOR.™

Street price may vary. Mac compatible. Some models require Epson coated paper for 720 dpi color printing. EPSON and EPSON Stylus are registered trademarks of Seiko Epson Corp. Windows is a registered trademark of Microsoft in the U.S. and other countries. ©1995 Epson America Inc.

SCULLEY REDUX

Former Apple CEO John Sculley has taken over as president and CEO at Live Picture Inc. of Soquel, Calif.

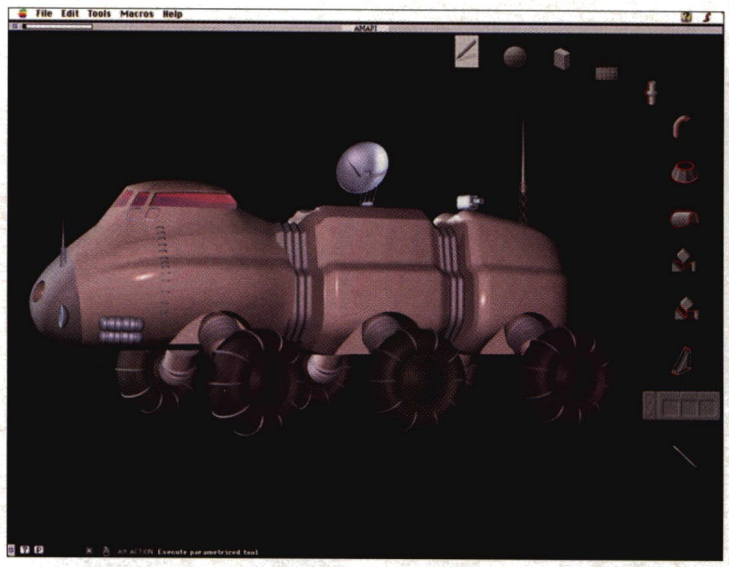
Two 3-D apps hit U.S.

Yonowat, Abvent deliver packages

By Kelly Ryer

A new wave of French 3-D software has reached U.S. shores. Amapi, a modeling package from start-up Yonowat Inc., promises top-flight Mac-based modeling at a bargain-basement price. Meanwhile, Abvent SA of Paris has cut the memory overhead on its Atlantis Render package.

Yonowat of San Francisco introduced Amapi at this month's Macworld Expo. The $300 program, developed by Yonowat SA of Paris, lets users edit an object in NURBS (nonuniform rational B-splines) or polyhedral mode. Along with 2-D and 3-D drawing tools and primitives, Amapi offers Boolean controls and lets users fillet and chamfer the edges of objects. It can also generate a surface based on four boundary curves, Yonowat said.



Low-cost 3-D vehicle: Yonowat's cross-platform Amapi modeler offers Boolean and NURBS controls and fancy edge detailing.

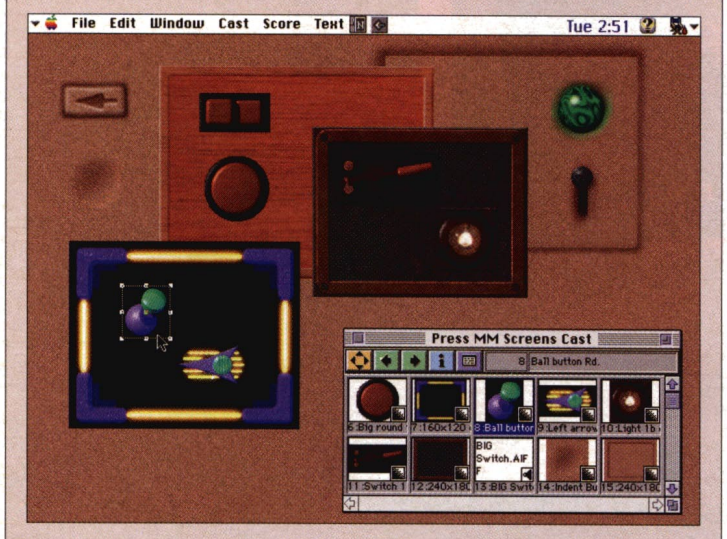
Its unusual user interface incorporates grouping; a set of macros, perspective and orthographic views; and unlimited levels of Undo.

Amapi also features a dynamic smoothing tool that allows a user to create a simple polygon-based model, then smooth specific areas into more-detailed Bezier meshes. This capability is unique to Amapi, Yonowat said.

Amapi offers a simple Gouraud shading mode for visualization, but it is not designed as a renderer. Instead, it exports files in a host of formats, including DXF (Drawing Interchange File), 3DGF (3-D

See 3-D software, Page 15

VICIOUS FISHES LURES MEDIA MAKERS



Casting its nets for multimedia producers, Vicious Fishes Software recently launched its Multimedia Tackle Box. The series of 12 interface kits are designed to make the graphics end of multimedia authoring as simple as cut and paste. Each contains PICT backgrounds, windows, panels, buttons and AIFF (Audio Interchange File Format) sounds. Users can assemble the parts with any multimedia authoring tool.

Two kits, Sandstone and '30s Industrial, ship in a $49.95 Starter Box, which includes conversion software as well as basic tips and tricks. Ten additional kits cost $29.95 each.

Vicious Fishes Software of Brea, Calif., is at (714) 671-0330 or (800) 642-4524; fax (714) 671-2871; http://www.viciousfishes.com.

FOCUS ON MULTIMEDIA

Object-oriented apps try to catch Director

By Carolyn Said

"Object-oriented" promises a panacea for multimedia: a rosy future where developers can create titles simply by clicking and dragging objects.

Over the past year, there has been a flurry of releases of object-oriented applications. Nevertheless, the industry leader, Macromedia Director, has retained its strong position as Macromedia Inc. has continued moving aggressively to stay in step, observers said.

Current competitors

- mTropolis, an authoring application from mFactory Inc. of Burlingame, Calif., shipped this month (see 01.15.96, Page 12). The $4,995 software features interaction among objects containing sound, text, video, graphics and programmed behaviors. While its price puts it in the same league as Macromedia's $4,995 Authorware, many observers see it as a competitor to the $1,195 Director.

"An application that uses an object model like mTropolis allows the designer to rapidly prototype an idea and test it," said Zac Belado, owner of boondoggle communications of Vancouver. "mTropolis was created from the ground up to use an object model, and the flexibility it gives the designer and the time it saves make it much more useful than Director."

Similarly, Charlie Koehl, a multimedia programmer in San

See Focus On, Page 14

Graphics cards jump on PCI bus

By Kristin Balleisen

Riding the crest of the PCI accelerator wave, PC board vendors Number Nine Visual Technology Corp. and Integrated Micro Solutions introduced new offerings at Macworld Expo in San Francisco this month.

Number Nine delivered the Imagine 128, its first PCI accelerator for the Mac market. The board is available in 4- and 8-Mbyte configurations with estimated prices of $899 and $1,599, respectively. Both cards can sup-

See PCI, Page 14

Agfa reaches new heights with flatbed scanner line

By Kristin Balleisen

Agfa this month pushed the high end of its flatbed scanner line when it rolled out a replacement to its Horizon Plus at San Francisco's Macworld Expo.

The Horizon Ultra, due to ship this month for $19,995, will be able to accommodate reflective originals measuring up to 11 by 17 inches; it will also ship with a glass slide holder that handles transparencies measuring up to 9.5 by 13.4 inches.

According to Agfa, the new scanner is as much as 35 percent faster than its predecessor; the company credited SCSI and software improvements for the performance boost.

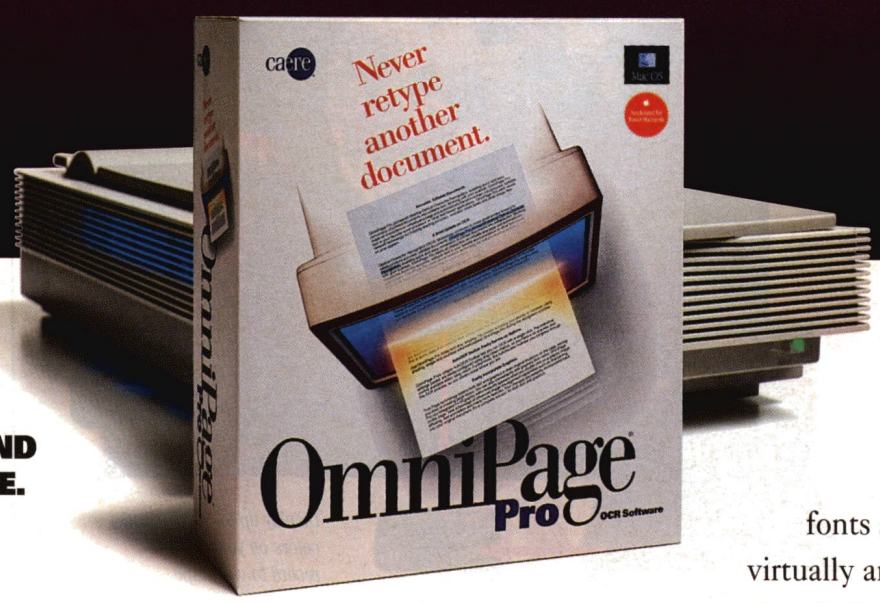
The new scanner features an optical resolution of 2,000 by 1,200 dpi; through the company's FotoTune software, the scanner will offer an interpolated resolution of 3,600 by 2,000 dpi.

It captures 36 bits of RGB color per pixel in a single pass. It features a 15,000-element CCD (charge-coupled device) array. Agfa said the device can scan 24 4-by-5-inch, 450-dpi transparencies per hour.

Agfa, a division of Bayer Corp., of Ridgefield Park, N.J., is at (800) 685-4271; fax (508) 658-4193. □

NEW
VERSION 6.0

TURN YOUR SCANNER INTO A WORLD-CLASS TYPIST.



INTRODUCING OMNIPAGE PRO 6.0— IT'S FASTER, EASIER AND MUCH MORE ACCURATE.

Tired of retyping faxes, reports, articles, even letters into your Macintosh? With OmniPage® Pro 6.0 and your scanner, you can accurately enter thousands of words per minute with the simple push of a button.

OmniPage Pro 6.0 is ten times quicker than the fastest typist—and still delivers pinpoint accuracy.

OmniPage Pro 6.0's industry-leading Optical Character Recognition (OCR) software converts your scanned pages to editable text and graphics in seconds for use in popular Mac applications like Word, WordPerfect, Quark Xpress, Excel and many others. So you get to spend more time producing instead of manually typing.

And OmniPage Pro 6.0's blazing speed, which is even faster on Power Mac systems, is only outdone by its superior accuracy. It recognizes all fonts at virtually any size. It flags suspicious words, then corrects them for you. It accurately interprets hard-to-read faxes and copies using gray-scale information. And it even reads unique characters and special symbols.

MacUser RATED 4 1/2 JANUARY 1995 · MW ★★★★ NOVEMBER 1994 · score card MacWEEK ◆◆◆◆ AUGUST 1994

"Powerful and faster, Caere's OCR stalwart scores high on accuracy."

MacUser January 1995

Without doubt OmniPage Pro 6.0 is the smartest OCR software you can buy. So order a copy today, or call your local reseller for more information.

SPECIAL UPGRADE

$149*

70% OFF RETAIL PRICE

Upgrade from OmniPage Limited Edition, OmniPage Lite, WordScan or other versions of OmniPage (including those bundled in your scanner) and get the best OCR!

- **65% more accurate**
- **35% faster**
- **Enhanced, easy-to-use AutoOCR Toolbar™**
- **Retain original page layout with True Page®**
- **24-bit image editor**
- **Accelerated for Power Macintosh**
- **Interactive Apple Guide assistance**

800-736-5735

Call Ext. 130 today!

caere®

*Suggested price US dollars—subject to change without notice. Offer valid in US and Canada only. Caere, the Caere logo, OmniPage, WordScan and True Page are registered trademarks and AutoOCR Toolbar is a trademark of Caere Corporation. All other names are the property of their respective holders. © 1995.

FOCUS ON

From Page 12

Francisco, said: "I started using mTropolis [beta] in March 1994, and it made me never want to use Director again. I always wrote reusable, object-oriented Lingo for my projects, but mTropolis makes reusing code and programming so much easier."

▶ Oracle Media Objects from Oracle Corp. of Redwood Shores, Calif., was released in March 1994 at an introductory price of $99. In June, it will be $495. The event-driven multimedia authoring application lets users manipulate multimedia objects with a simple scripting language.

"I like Oracle Media Objects because it's cheap and available on the Web for 90 days," said Bud Nail, consultant for VideComp of Picayune, Miss. "It works well across Mac and Win platforms. I don't know if it will replace Director from a functional standpoint ... but from the small, cash-sensitive developer's point of view, a grand [the price of Director] is a little steep to integrate multimedia when compared to the other alternatives."

▶ San Francisco-based Macromedia is preparing Version 5 of Director, promising features such as multiple casts and use of Adobe Photoshop plug-ins, while Macromedia has developed Shockwave, software that lets developers compress Director presentations then distribute them over the Web with a free player. The company also said it plans to increase integration among its applications with a common plug-in architecture, user interface and scripting language.

"Not just Director but Macromedia is morphing into being a full-service multimedia tools company," said Jamie Siglar, a multimedia consultant based in Somerville, Mass. "Already you can build your [computer-based training] in Authorware and directly import SoundEdit 16 files, as well as directly play back Director movies."

Soon, users will be able to "import FreeHand objects, bundle Fontographer fonts and use identical (where contextually appropriate) externals to control the content," Siglar said. "The creation of the

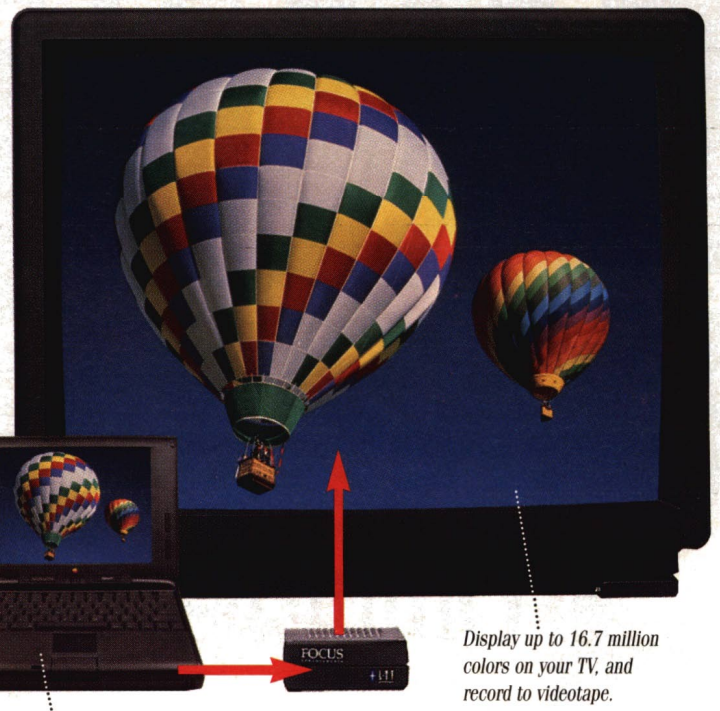
See Focus On, next page

When You Make It To The Big Screen Second Best Is Not Good Enough.

Apple's #1 Choice In Mac-To-TV Interfaces

When Apple needed to ship the best portable Mac-To-TV interface with their Apple Presentation System, they chose the FOCUS L•TV Portable. Simply because presenters, educators and trainers can plug the small, lightweight L•TV Portable into a Mac with video-out capability (including PowerBooks) and instantly have a fast, powerful, big screen multimedia presentation system. Duplicate the Mac screen on the TV or record to a VCR. Flicker elimination software, built-in RCA, S-Video connectors and all cables are included. The FOCUS L•TV internal color card also lets classroom trainers use the TV as a second monitor.

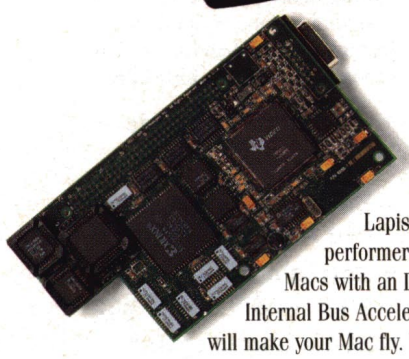
L•TV Portable $229.99
L•TV Portable Pro $299.99
L•TV LC Card $299.99



Display up to 16.7 million colors on your TV, and record to videotape.

Plug-and-play desktop or PowerBook Macs

Our Customers' #1 Choice In Big Screen Color Cards

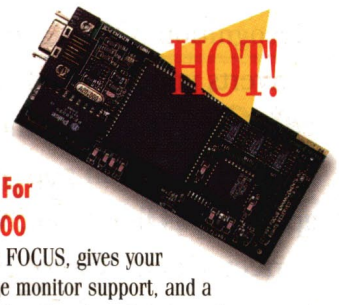


LapisColor Cards from FOCUS are performers, pure and simple. For Macs with an LC-PDS slot, the 64-bit Internal Bus Acceleration on LapisColor cards will make your Mac fly. With up to 3 megs of VRAM, they are favorites with our customers who work with complex graphics or video editing and viewing, and who have no patience to wait for their monitor to catch up with their mind. LapisColor cards are compatible with Apple, Sony, SuperMac, Radius and RasterOps monitors, to name a few. The complete line of LapisColor 24-bit, 16-bit or 8-bit cards work with any LC-PDS slot-equipped Mac.

FAST! 24-Bit COLOR

From $339.00

A Must For New PowerBook 190/5300 Owners!



Combo Video & Ethernet Cards For Macintosh PowerBook 190/5300

The new MV series, exclusively from FOCUS, gives your PowerBook fast 16-bit color for large monitor support, and a *permanent,* built-in Ethernet connection that doesn't use precious PCMCIA slots. The MV family of cards use dedicated video and ethernet controller chips to provide maximum performance. A dual purpose MicroLatch connector cable provides a solid cable link to your network and display.

LapisColor MV8-EN $249.00
LapisColor MV16 $299.00
LapisColor MV16-EN $399.00

Call for more information or the reseller nearest you.

Call for a free product guide

800-538-6000

FOCUS enhancements
networking • graphics • software

INGRAM MICRO | The Mac Zone | Computer Town | MacWAREHOUSE

PCI

From Page 12

port screen resolutions ranging from 640 by 480 to 1,600 by 1,280 pixels.

The Imagine 128 offers a 128-bit internal data path; Number Nine said the new board can process four 32-bit pixels in a single instruction cycle.

Number Nine said the 4-Mbyte configuration can generate 24-bit color at 1,280 by 960 pixels, while the 8-Mbyte model supports 24-bit color at 1,600 by 1,280 pixels. Both feature refresh rates of up to 100 Hz at 1,152 by 870 pixels and 80 Hz at 1,600 by 1,280 pixels.

The board offers hardware zoom and pan for screen magnification of up to four times the original size; users can also drag application and program windows around the screen in real time instead of repositioning an outline.

IMS this month is slated to ship the TwinTurbo-128M2, an entry-level, $399 counterpart to its $699 128M graphics accelerator (see 06.26.95, Page 6).

According to IMS, the single-chip board derives 128-bit performance from two interleaved 64-bit processors. The board will ship with 2 Mbytes of video RAM that can be upgraded to 4 Mbytes. The TwinTurbo-128M2 uses Apple-standard DIMMs (dual in-line memory modules), so users can use memory from the motherboard to upgrade, the company said.

The new board supports a screen resolution of 640 by 480 pixels in 24-bit mode and up to 1,600 by 1,200 pixels in eight-bit mode. It also features a refresh rate of up to 100 Hz at 1,152 by 870 pixels and a line-draw rate of 10 million pixels per second.

The accelerator packs a hardware zoom control for instant screen magnification without pixel replication as well as real-time video playback. It will support Apple's forthcoming QuickTime MPEG playback extension, IMS said.

Number Nine Visual Technology Corp. of Lexington, Mass., can be reached at (617) 674-0009 or (800) 438-6463; fax (617) 674-2919; http://www.nine.com.

Integrated Micro Solutions of San Jose, Calif., can be reached at (408) 369-8282; fax (408) 369-0128; imsteksup@aol.com. □

FOCUS ON
From previous page

Xtras format for externals is a boon."

▶ ScriptX was developed by Kaleida Labs Inc., a joint venture of Apple and IBM Corp.

In November, less than a year after the object-oriented programming language's release, the two companies said they would dismantle Kaleida but continue work on ScriptX. Version 1.5, which adds new features for the Internet and CD-ROM programming as well as native Power Mac support, shipped this month.

Apple is reportedly developing SK8, a graphical front end that will make ScriptX accessible to a wider audience. "ScriptX seems to be flaming out," said Tony Bove, a multimedia producer with Rockument Inc. of Gualala, Calif. "Not to denigrate the technology at all, but there never was a [front-end] tool to use with it; even NextStep has tools."

Other solutions

Allegiant Technologies Inc. of San Diego is continuing to develop the $749 SuperCard; Version 3.0, due this year, will feature more extensive use of object technology. "SuperCard offers both editable text and hypertext support, and nonrectangular hot spots and multiple windowing," Siglar said.

Apple's $495 Media Tool and $995 Media Tool Programming Environment also offer an object-oriented approach, letting users drag and drop media elements into applications.

Looking ahead

There's no question that the next frontier for multimedia is the Web, which may mean that the biggest new competitor is not a new application but Sun Microsystems Inc.'s Java. While the language is currently usable only by expert programmers, Netscape Communications Corp. is developing a scripting language that will make Java easier to use.

Kevin Nilsen, research scientist at Iowa State University in Ames, has been working on establishing a standard for real-time Java components. "One of the potential applications for this is multimedia over the network and portable multimedia development for kiosks, home computers [and] business applications," he said.

Multimedia developers are divided on just how useful objects are. "Object orientation is here to stay whether we like it or not … because it forces us to reuse code and, more importantly, forces developers to build reusable code in the first place," Siglar said.

On the other hand, said Gretchen Macdowall, a multimedia programmer with Brueckner Interactive of Boston: "I don't think OO is the Holy Grail, although everyone could benefit from applying some of the principles behind it. The premise of writing reusable objects is sound, but it takes quite a while to build a library of objects that are really generic enough to reuse." □

3-D software

From Page 12

Geometry File) and 3DMF (3-D metafile format) and those for Wavefront Explore, MetaTools Inc.'s KPT Bryce Pro, Ray Dream Inc.'s Designer and ElectricImage. Support for Strata Inc.'s Studio Pro file format will be available soon, the company said.

Meanwhile, Abvent showed Version 2.0 of its $600 Atlantis Render software at Macworld. Abvent said the upgrade requires only one-quarter the memory of its predecessor, Atlantis Render 1.6.

Atlantis features interactive ray tracing in a variety of file formats, Abvent said. The software lets users create 3-D effects by dragging icons onto objects. It can add reflection, refraction and diffraction; shadows; multiple colored light sources; and transparency to a scene. The software includes some texture-mapping capabilities and supports smoothing and anti-aliasing of objects.

Version 2.0 adds support for Targa and BMP formats in addition to PICT files.

Atlantis was originally distributed by Graphisoft U.S. Inc. of South San Francisco, Calif. The new version is available from View by View Inc. of San Francisco.

Yonowat Inc. of San Francisco can be reached at (415) 928-6960; fax (415) 923-1205; http://www.yonowat.com/.

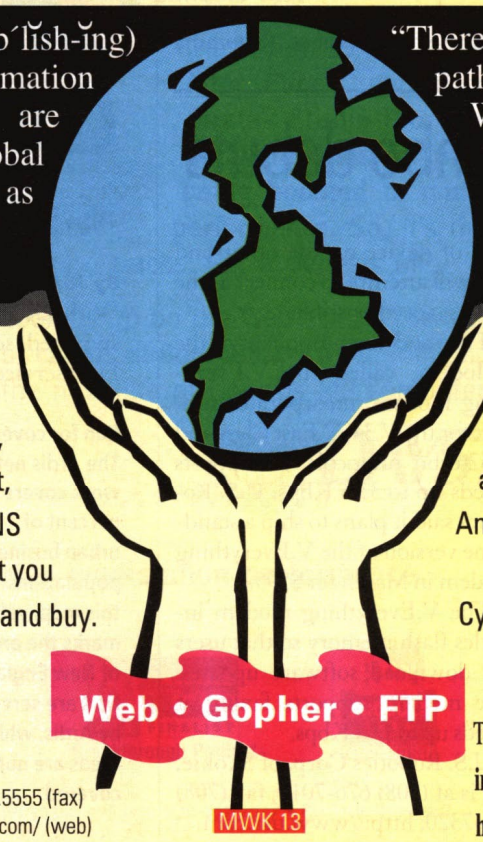
View by View Inc. of San Francisco is at (415) 775-6926; fax (415) 923-1205. □

Cyber-publishing™ WITH InterServer Publisher™!

Cyberpublishing (sī´bər-pəb´lĭsh-ĭng) *n.* The dissemination of information via electronic devices that are joined together in a global network often referred to as Cyberspace.

"There seems to be a natural migration path from desktop publishing to the Web." -Richard Rawls, writer, MacWeek (06.12.95)

"Anyone interested in desktop publishing will be interested in Web publishing." -Eric Bickford, Mac Webmasters, MacWeek (06.12.95)



InterCon's InterServer Publisher for Macintosh can put your business, group or organization on the Internet, giving a growing market of MILLIONS almost instantaneous access to what you want them to see, know, experience and buy.

InterServer Publisher is a Web server, a Gopher server, an FTP server and more—in one integrated application. An HTML editor, templates, and CGI scripts allow for INSTANT Web page creation. Cyberpublishing has never been this easy!

InterCon
950 Herndon Parkway ■ Herndon, Virginia 22070
703.709.5500 or 1.800.INTRCON (voice) ■ 703.709.5555 (fax)
info@intercon.com (email) ■ http://www.intercon.com/ (web)

To learn more about InterServer Publisher, send email to **interserver@intercon.com** or connect via Web at **http://www.intercon.com/newpi/interserver2.html**

MWK 13

UNLEASHED

Cyberdog, Apple's upcoming suite of Internet tools, now has a Web site at http://cyberdog.apple.com.

Panorama update offers client-server functions

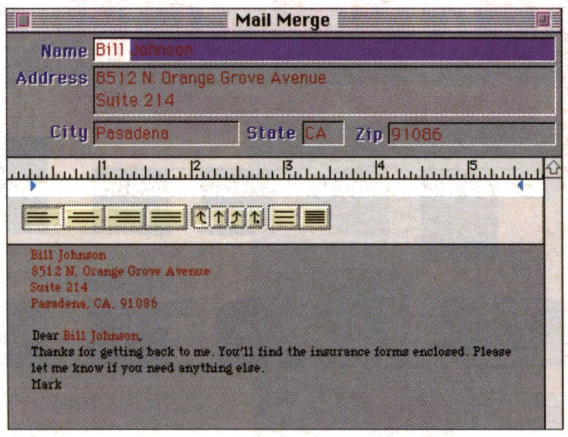
ProVUE ships database at expo

By Clifford Colby

ProVUE Development Corp. started its week at Macworld Expo this month by shipping a major update to Panorama. Version 3.0 of the database includes a passel of new features, including client-server capabilities.

With the new version, users can link to a licensed version of EveryWare Development Corp.'s Butler SQL database server and create multi-user applications. Users can gather subsets of data from the server to run locally on a client machine and take a local version of the database on the road. When the client reconnects to the server, the company said Panorama will synchronize the two versions.

The update contains changes to Panorama's interface, including a graphics control strip and SuperObjects, a set of prebuilt elements — buttons, pop-up menus and lists — that lets users quickly assemble forms.


Mail Merge
Name Bill Johnson
Address 8512 N. Orange Grove Avenue
Suite 214
City Pasadena State CA Zip 91086
Bill Johnson
8512 N. Orange Grove Avenue
Suite 214
Pasadena, CA. 91086
Dear Bill Johnson,
Thanks for getting back to me. You'll find the insurance forms enclosed. Please let me know if you need anything else.
Mark

The new version of Panorama includes enhanced mail-merge capabilities and comes with a word processor that can be added to a form in a database.

Panorama 3 supports AppleScript and features an improved programming environment with a built-in debugger, 40 new statements and 100 new functions.

"I'm ecstatic about the tools provided in Panorama 3, including the word processor and expanded scripting language," said James Cook, president of HindSight Ltd., a database development company in Highlands Ranch, Colo.

Cook, in ProVUE's booth demonstrating his Panorama-based application, said, "For anyone who wants to do serious database development, Panorama is one of the fastest ways to go."

Pricing of Panorama 3 ranges from $395 for a single-user version to $3,549 for an unlimited client-server license. A runtime version is due by the end of this month.

ProVUE Development Corp. of Huntington Beach, Calif., can be reached at (714) 841-7779 or (800) 966-7878; fax (714) 841-1479; sales@provue.com. □

First Mac client for Collabra Share ships

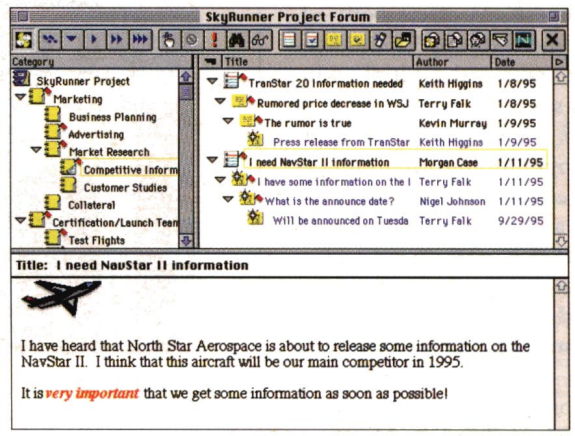
By Clifford Colby

Bringing its workgroup software across platforms, Netscape Communications Corp. recently shipped the first Mac client for Collabra Share, its information-sharing and group-conferencing software.

Netscape bought Collabra Share along with its company, Collabra Software Inc., last fall. The Mac client reflects Netscape's Internet focus, allowing users to embed links to Web pages, Internet newsgroups and mail in Collabra Share documents. The new version also includes a button that users can click to launch the Navigator Web browser from within Collabra Share.

The company said the Mac client includes an e-mail plug-in module for accessing other e-mail systems, including Microsoft Mail and Lotus Development Corp.'s

See Collabra, Page 18


SkyRunner Project Forum
Category
Title
Author
Date
SkyRunner Project
Marketing
Business Planning
Advertising
Market Research
Competitive Inform
Customer Studies
Collateral
Certification/Launch Team
Test Flights
TranStar 20 Information needed Keith Higgins 1/8/95
Rumored price decrease in WSJ Terry Falk 1/8/95
The rumor is true Kevin Murray 1/9/95
Press release from TranStar Keith Higgins 1/9/95
I need NavStar II information Morgan Case 1/11/95
I have some information on the I Terry Falk 1/11/95
What is the announce date? Nigel Johnson 1/11/95
Will be announced on Tuesda Terry Falk 9/29/95
Title: I need NavStar II information
I have heard that North Star Aerospace is about to release some information on the NavStar II. I think that this aircraft will be our main competitor in 1995.
It is very important that we get some information as soon as possible!

The three-pane messaging interface of Collabra Share lets users view topics, track messages in threads and view documents.

ISDN modem combo debuts

By Joanna Pearlstein

U.S. Robotics Corp. has brought ISDN into its modem family with the announcement of the Courier I-modem, which combines an ISDN terminal adapter with a V.34 modem.

Expected to ship this March, the $895 Courier I-Modem will include two B channels, support for MultiLink PPP (Point-to-Point Protocol) and an integrated NT1, as well as an analog jack for plugging in a phone or fax machine. When the two B channels are combined, the I-Modem can achieve speeds up to 128 Kbps on an ISDN, or Integrated Services Digital Network, line. The Courier I-modem detects the type of device on the other end and will attempt to connect at the highest speed possible.

The modem component of the I-Modem, called the V.Everything modem, incorporates support for the V.34, V.Fast Class and V.32terbo protocols; it supports speeds up to 33.6 Kbps. U.S. Robotics said it plans to ship a standalone version of the V.Everything modem in March for $595.

The V.Everything modem includes flash memory so that users can download software updates. The modem supports faxing at speeds up to 14.4 Kbps.

U.S. Robotics Corp. of Skokie, Ill., is at (708) 676-7010; fax (708) 676-7320; http://www.usr.com. □

FOCUS ON

COMMUNICATIONS

CDPD: One to beat in wireless war

This is the second of a two-part series.

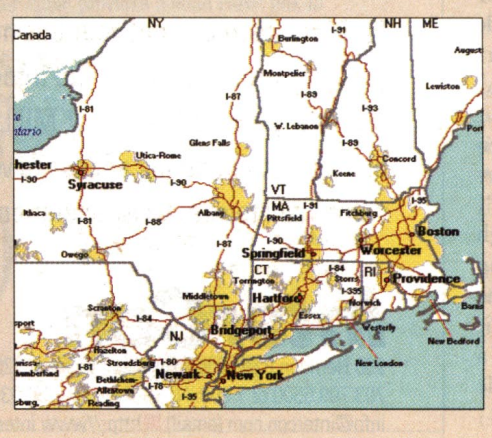
By Joanna Pearlstein

With circuit-switched cellular service, packet-switched services and Cellular Digital Packet Data service, wireless wannabes face a befuddling array of options. However, according to analysts, while Cellular Digital Packet Data, or CDPD, is currently the market follower, lower cost and greater potential coverage will eventually make cellular digital king of the wireless hill.

A 1995 study by the Yankee Group of Boston said 60 percent of mobile data network users are using circuit-switched cellular, 8 percent Ardis, 6 percent RAM Mobile Data and less than 1 percent CDPD. Most of these mobile users work in transportation, field service, field sales, public safety or financial services.

In the study, 36 percent of users said they were somewhat satisfied with availability of the network they used but only 13 percent were very satisfied. "Neither Ardis nor [RAM Mobile Data] have been able to sell

See Focus On, Page 18



Run for cover: The Ardis network covers 92 percent of urban business populations. In this map, yellow marks the areas of New England that are served by Ardis; white areas are not covered.

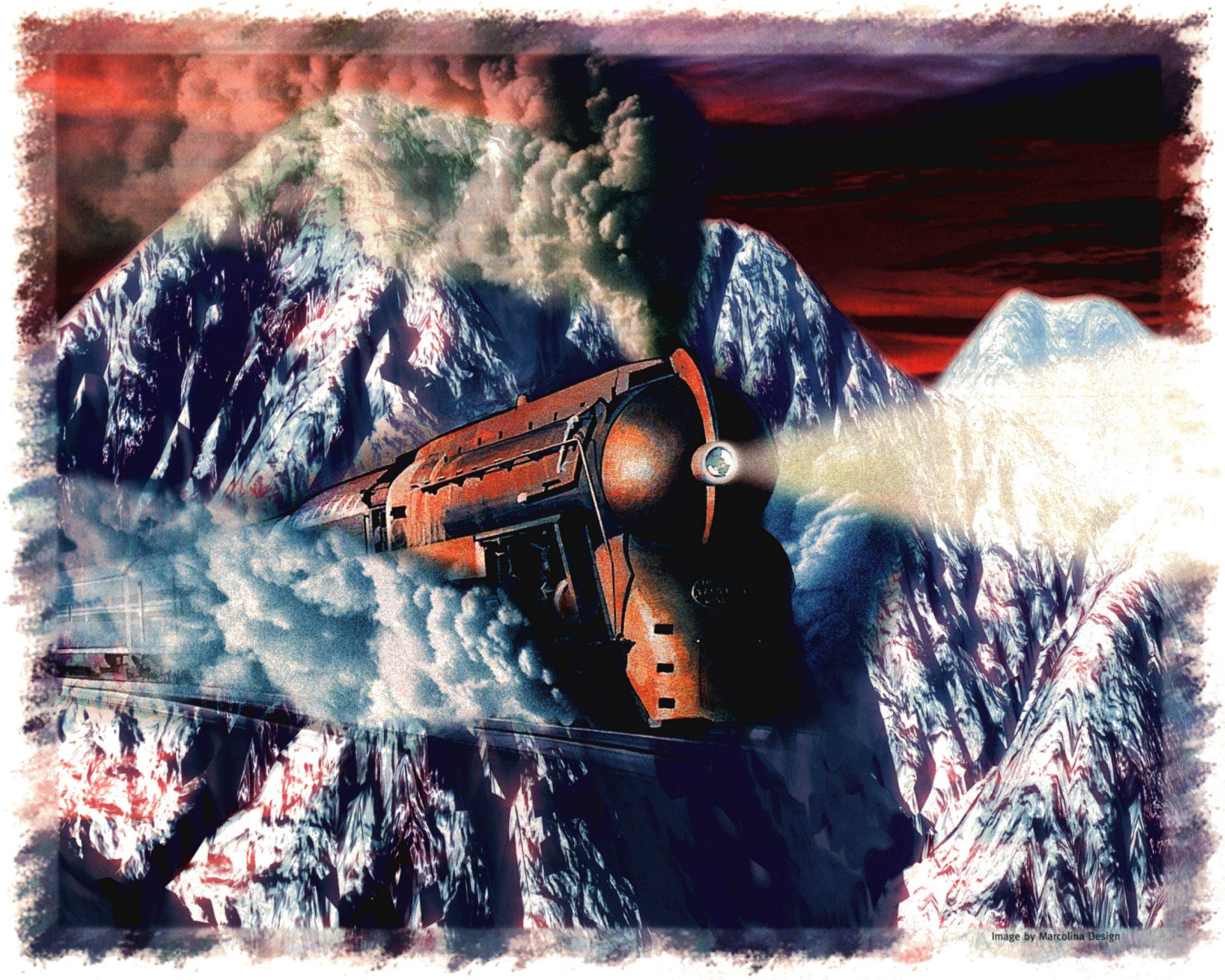


Image by Marcolina Design

Drive a High-Res, Full Page Photoshop Image. Real-Time, Anytime with Genesis MP.

You know the tracks are there even if they're covered under seven feet of snow. You know how to get the job done. You just need more time... or more power. **Power counts.** Especially when you have to produce an image in time to make the last courier. **The less time spent waiting on Photoshop, the more time you have to be creative and still make it under the wire.**

The revolutionary Genesis MP is a powerful new Mac OS system using four of the fastest PowerPC 604 processors available. Now you can drive huge files in real-time rather than just pushing pixels.

Genesis MP runs Photoshop seven times faster than a PowerMac 8100. It's four times faster than Apple's new PowerMac 9500. Even an SGI workstation costing three times as much runs at a fraction of the speed. **Nobody does it faster than Genesis MP.**

In addition to Adobe's Photoshop, After Effects and Premiere, and Strata's Studio Pro, **over 200 Mac software titles for publishing are being boosted to multiprocessing performance.** So, it's time to make tracks. Get a Genesis MP.

Look us up on the Web at http://www.daystar.com or **call us at 800.984.4510** for some hard data on the new line of Genesis MP computers.

DAYSTAR® DIGITAL

Genesis MP: A new beginning in Mac workstation performance.

NewMedia Magazine 1996 Hyper Award

Best New Products 1995 Color Publishing

Best of Byte Show

MacUser Editors' Choice Award 1995 Finalist — Mac OS System

MacUser Editors' Choice Award 1995 Finalist — Breakthrough Product

Hot Product 1995 Electronic Publishing

Computer Artist Top Product 1995

© DayStar Digital, Inc. 5556 Atlanta Highway, Flowery Branch, GA 30542 • Phone: 770-967-2077 • Fax: 770-967-3018

FOCUS ON

From Page 16

[mobile data networks] on the strength of wireless e-mail alone," the report said.

Ardis and RAM Mobile Data face several barriers. For example, while the networks cover major metropolitan areas, most rural users aren't covered (see map, Page 16). Also, slow speeds and high pricing have led Ardis and RAM Mobile Data users to rely on their services primarily for transmitting small messages.

"Technically there are no limitations on file or message size," said Dan Luis, vice president of business development at San Luis Obispo, Calif.-based Wynd Communications Corp. Wynd runs WyndMail, an e-mail service that operates on RAM Mobile Data. "The network is best optimized for smaller, bursty data — you're not talking about really high throughput."

"The issue is what's the user willing to tolerate and what [does] the user want to pay for?" Luis said. "We find our users use [WyndMail] for higher priority messages [where] larger files are a rarity."

Analysts agreed that Ardis and RAM do not have broad customer appeal. The advantage of cellular is that users need only a cellular phone — an item many business people already have — and a cellular-ready modem, a feature that is becoming more common. Another of cellular's major advantages is its ability to transmit voice and data; neither Ardis nor RAM Mobile Data can transmit voice. And cellular is available virtually everywhere in the United States.

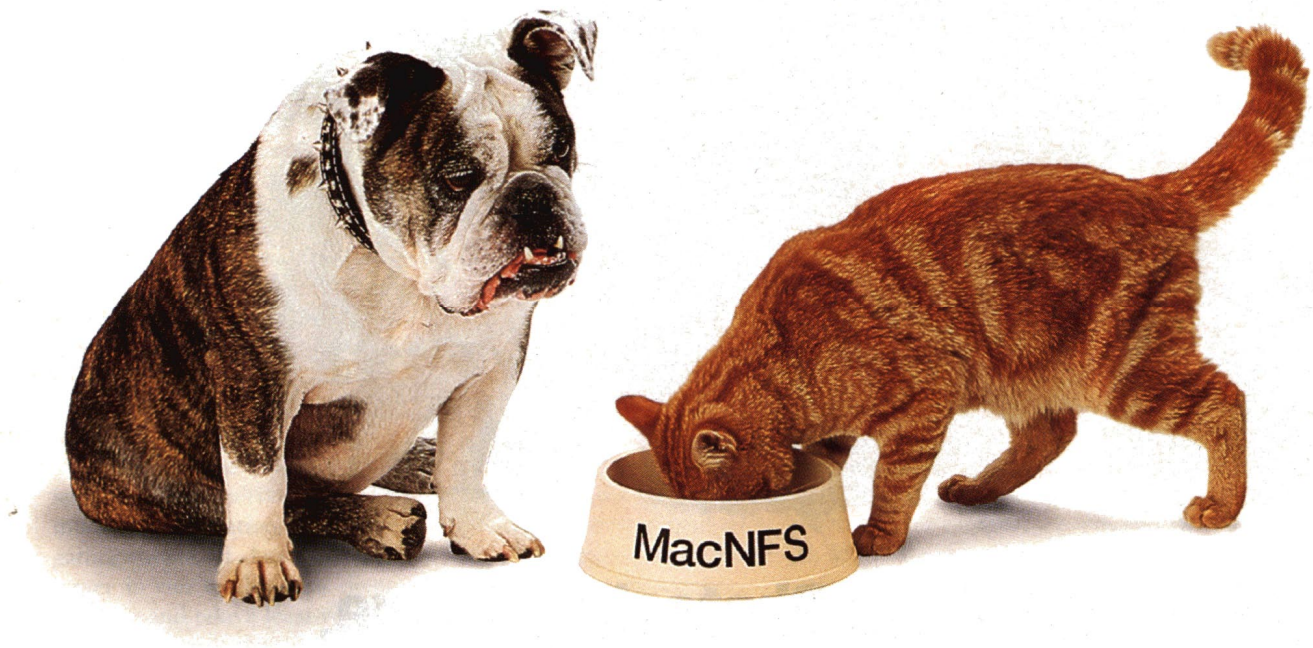
The disadvantages of sending data over circuit-switched cellular are the same as voice-based transmissions: Connections can be unreliable and, because users are charged by the minute, expensive.

"If I were a user and had to use wireless, I'd pick circuit-switched cellular because I know I'd get coverage," said Ken Dulaney, vice president of mobile computing at The Gartner Group in Santa Clara, Calif. "The real problem is nobody's really found a need for wireless. Right now, transmitting wireless is just for techies and vertical markets."

Philip Redman, an analyst with the Yankee Group, said that circuit-switched cellular is the technology being used most, but only about 1 percent of its users are transmitting data. "[It is because of] slow transmission speeds, unreliable connections and the expense," he said. "Right now it's cheaper to wait to get to the hotel to send the information."

CDPD will speed transmission and should be less expensive and more reliable, according to Redman. But, he said, it has yet to be deployed nationally.

Gerry Purdy, editor in chief of Mobile Letter, a newsletter about mobile computing based in Cupertino, Calif., said that he agreed CDPD will win out. "CDPD has a much broader potential geographical coverage [than Ardis and RAM Mobile Data], since it sits on top of the cellular network," he said. "We think it's going to significantly expand the market as CDPD services become available in 1996." □



MacNFS™ teaches your Macintosh and UNIX to share.

Not long ago, Macintosh and UNIX machines were about as compatible as, well you know. Now, you can achieve true NFS connectivity with MacNFS from TSS. MacNFS lets users share information with multiple-vendored UNIX machines as if they were on a local Macintosh volume.

- **The only Open Transport Ready NFS client available**
- **Shares data with UNIX, DOS, and Windows applications**
- **The fastest and most reliable NFS client for the Macintosh**
- **MacNFS is as easy to use as AppleShare**

For an immediate NFS solution for your Macintosh, contact us today!

TSS

Thursby Software Systems, Inc.

5840 West Interstate 20 • Arlington, TX 76017 U.S.A. • Telephone: (817) 478-5070
Facsimile: (817) 561-2313 • Internet: sales@thursby.com • www: http://www.thursby.com

Mac OS

©1996 Thursby Software Systems, Inc. Mac and the Mac OS logo are trademarks of Apple Computer, Inc., used under license.

Collabra

From Page 16

cc:Mail. The client is compatible with the Exchange groupware mail system from Microsoft Corp. A Mailbox Tracker feature updates users' mail information when they change post offices or mail systems.

The Mac client includes the InfoNavigator tool bar, which lets users move quickly through information. Users can also perform full text searches and attach files to Collabra Share documents.

"The people who have Macs in our company have been dying for this," said James Heiser, senior information support specialist for Basic American Foods, a food manufacturer and distributor in Walnut Creek, Calif. Heiser, whose company uses a mix of Macs and Intel-standard PCs, has been using Collabra Share for several years. "With Collabra Share, the whole chain of thought is included with messages, and with the Navigator addition, you can now put in a hot link when you want to send someone to something you are referring to," he said.

Collabra Share 2.1 Macintosh Edition costs $99.95 per user and requires a Windows NT server, which costs $995; a Windows client is also available.

Netscape Communications Corp. of Mountain View, Calif., can be reached at (415) 528-2555 or (800) 474-7427; fax (415) 528-4140; http://www.netscape.com. □

Register to Win a Free Copy of netOctopus!

Complete this card to enter our drawing for a free copy of netOctopus. Drop this card by our booth #2044 at MacWorld... mail it...or fax it to us at 508-988-2040. All entries must be received by February 15, 1996.

Name _____

Title _____

Company _____

Address _____

City _____ State _____ Zip _____

Tel _____ Fax _____ E-mail _____

Number of networked computers: Macintosh _____ PCs _____

All information must be completed to be eligible.

DATAWATCH

MW12296

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS MAIL PERMIT NO. 317 WILMINGTON, MA 01887

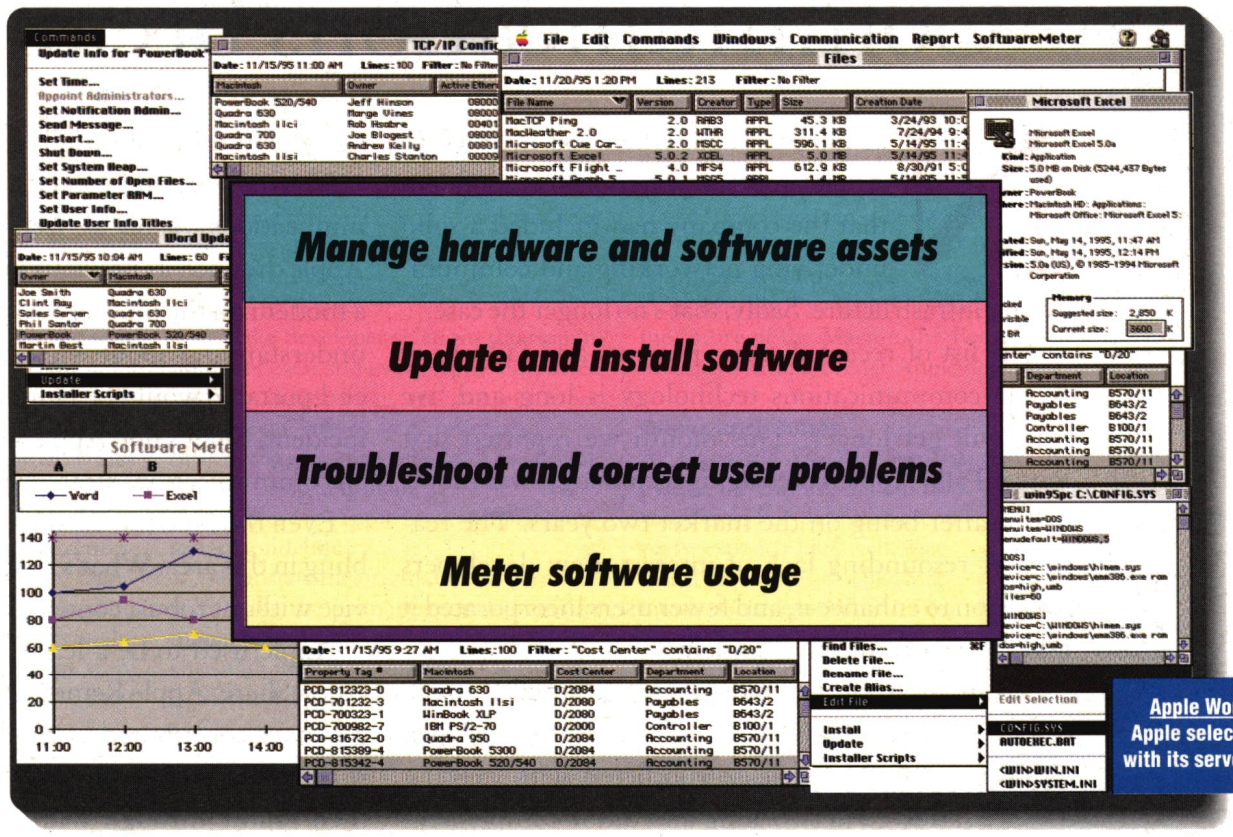
POSTAGE WILL BE PAID BY ADDRESSEE

Datawatch Corporation
ATTN: Marketing Communications
234 Ballardvale Street
Wilmington, MA 01887-9901

System Administrators:

netOctopus makes your job easier

While reducing service and support costs!


Manage hardware and software assets
Update and install software
Troubleshoot and correct user problems
Meter software usage

MACUSER

MacUser October '95

MACWEEK

MacWeek March 28, 1994

Apple Workgroup Server Owners:
Apple selected netOctopus to bundle with its servers. Try your 10 pack now!

Managing Macintosh and cross-platform networks is hard work. Many analysts report service and support represent more than 70% of total computer ownership costs. Let netOctopus lend you a hand.

Managing assets, installing and updating software, troubleshooting user problems, even metering software...netOctopus lets you solve problems throughout your network from the convenience of your desktop computer. As *MacUser* said: "netOctopus keeps network administrators in control."

Manage Assets. Hardware and software is a substantial investment. netOctopus helps you manage it better. netOctopus lets you perform real-time inventories, generate audit reports, and even track hardware and software utilization.

Install and Update Software. Installing software takes time and effort. Either you walk around to every computer on your network, or you rely on your users. netOctopus lets you install software to any networked computer, quickly and automatically.

Troubleshoot User Problems. Troubleshooting problems is time consuming; it usually means visiting the user's computer. netOctopus lets you troubleshoot, fix, and even prevent user problems without leaving your desk.

Software Metering. Illegal software copying can expose your organization to costly liability. On the other hand, it's easy to waste money on unnecessary software purchases. netOctopus lets you monitor actual software usage to check compliance with licenses and to optimize purchase planning and software allocation.

netOctopus™

Compatibility and Flexibility. netOctopus manages Macintosh and PC computers from one administration program. It is designed to manage portable computers on the road as well as desktop computers connected to your LAN or WAN. It works with a variety of communication protocols, and is customizable with industry standard AppleScript™.

Make your system administration and network management easier. Call us at **800-847-3982**.

DATAWATCH®

Datawatch Corporation 234 Ballardvale Street Wilmington, MA 01887 Tel 508-988-9700 Fax 508-988-2040

Datawatch is a registered trademark and netOctopus is a trademark of Datawatch Corporation. All other trademarks are the property of their respective holders.

MacWEEK

Editor in Chief Mark Hall
Editor Rick LePage
Managing Editor Brenda Benner
Art Director Eleanor Leishman
Director/Editorial Programs Anita Malnig

NEWS
Executive Editor Andrew Gore
News Editor Carolyn Said
Business Editor Jon Swartz
Senior Associate Editor/GA Matthew Rothenberg
Associate Editor/Gateways Robert Hess
Associate Editor/News David Morgenstern
Senior Writers Joanna Pearlstein, Kelly Ryer
Staff Writers Kristin Balleisen, Clifford Colby

REVIEWS AND FEATURES
Executive Editor Stephen Howard
Senior Editor/Features Catherine LaCroix
Senior Editor/Reviews Missy Roback
Associate Editor/Reviews Jeff Green
Assistant Editor Maria Sample
Editor at Large Dale Coleman
Editor Emeritus Henry Norr
Contributing Editors Don Crabb, Ric Ford, Bruce Fraser, Connie Guglielmo, Steve Hannaford, Jonathan Oski

MACWEEK ONLINE
Associate News Editor/On-line James Staten
Senior Editor, ZD Net/Mac Mark Simmons
Associate Editor, ZD Net/Mac Sasha Pave

COPY DESK
Assistant Managing Editor Mariann Hansen
Copy Chief Marty Cortinas
Senior Copy Editor Patricia Orsini
Copy Editor Rebecca Gulick

ART AND DESIGN
Associate Art Director Margaret Lee
Graphic Designer John Farnsworth II

PRODUCTION
Production Manager Steve Spingola
Assistant Production Manager Joy E. Krinsky
Production Coordinator Jose Urrutia
Pre-press Manager Tim Manousos
Assistant Pre-press Manager Tamara Gargus
Pre-press Technician Michele Kellogg

Group Publisher Chris Dobbrow

Group Business Director Bret A. Violette
Group Business Manager Mary E. Colbert
Group Marketing Director Laurel Clark Skillman
Group Research Director Neil Karlin
Marketing Manager Renee Bula
Sales Development Manager Cheri L. McKeithan
Marketing Coordinator Stephanie Arnold
Director, Controlled Circulation Justin Williams
Assistant Circulation Manager Lorraine O'Shea
Circulation Assistant Josephine Chang
Assistant to Group Publisher Lola Tanouye
Advertising Coordinators Elizabeth McGinnis, Jennifer Sawyer
Administrative Assistants Colleen Dasher, Heather McKee, Gina Michelucci, Deborah Monaghan

Editorial office: 301 Howard St., 15th Floor, San Francisco, Calif. 94105. Phone (415) 243-3500; fax (415) 243-3651; macweek@macweek.com

MacWEEK Online: http://www.zdnet.com/~macweek/ CompuServe: go zmc:macweek, eWorld: shortcut: macweek

Advertising office: 950 Tower Lane, Foster City, Calif. 94404. Phone (415) 378-5600; fax (415) 378-6903.

Subscriptions: Customer Service Department, MacWEEK, c/o JCI, P.O. Box 10634, Riverton, N.J. 08076-0634. Phone (609) 786-8230.

Permissions and Reprints: Requests for permission to quote from an article should be directed to Chantal Tucker, Ziff-Davis Publishing Co., 1 Park Ave., New York, N.Y. 10016; fax (212) 503-5420. For price quotes on reprints, contact Ziff-Davis Reprints at (800) 825-4237.

MacWEEK is an independent journal, not affiliated with Apple Computer Inc. Apple and Macintosh are trademarks of Apple Computer Inc. Entire contents copyright 1996 Ziff-Davis Publishing Co. All rights reserved. Material in this publication may not be reproduced in any form without permission. MacWEEK is a registered trademark of Ziff-Davis Publishing Co.

BPA INTERNATIONAL

Communications breakdown

Not too long ago, when you invested in Apple products, you could feel confident that the company had included a solid underlying networking and communications infrastructure. Sadly, that's no longer the case.

The list of recent disappointments and failures of Apple communications technology is long and, we fear, will get longer. This month we reported that PowerTalk, Apple's messaging technology, was mothballed after being on the market two years. The reason? A resounding lack of interest. Few developers signed on to enhance it, and fewer users incorporated it into their working environments.

Not many Apple technologies have caused as much of a stir on MacWEEK's CompuServe Forum as Open Transport 1.0. This release conflicted with existing products, slowed networking and did not implement many promised features. Although we hope Version 1.1 fixes past horrors, the ambitiousness of the technology and its initial shortfall make us nervous.

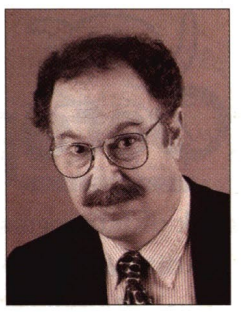
The most recent PowerBooks reflect a lack of a communications vision as well. To save a few dollars, Apple dropped its previous integration of Ethernet and a modem on the motherboard for its 5300. This lack of understanding about what users expect from a high-end portable would be laughable if it were an isolated incident. But it's not. Apple's failure to execute an overall communications strategy is frightening.

Even the Newton 2.0 does not escape Apple's bumbling in this area. What's a mobile communications device without robust connectivity?

Apple used to be a leader in this area. LocalTalk, AppleShare, Apple Remote Access and other technologies have contributed as much as user interface design to the Mac's success. Apple should think through and then follow through with its communications technologies and products and stop developing them simply for the sake of it. □

THE SECOND DECADE HENRY NORR

Products, not rhetoric, are Mac's Net advantage



Apple Americas President Jim Buckley struck a positively Gatesian note in declaring during his Macworld Expo keynote that not only is Apple centering its development efforts on the Internet, but that it's been doing so for years. His outline of Apple's Internet strategy — expected sometime later this year — was strikingly short of specifics; curiously, he didn't even take Cyberdog for a walk.

I suppose it's progress, though, that the company's top brass is at least learning to talk the talk; just three months ago, CEO Michael Spindler sent employees a 1,750-word letter on Apple's goals for fiscal 1996 without once mentioning the Internet or the Web. But the most heartening impression I took from the show was that growing numbers of Mac developers are walking the walk.

An industry emerges

Not long ago the Mac Web-server market consisted of one product: Chuck Shotton's shareware MacHTTP. Today it's a burgeoning industry.

The WebOut Vendor Fair, held on the eve of the expo in conjunction with the Mactivity/Web conference, had something of the flavor of early Mac expos. A "booth" meant a counter, a sign, some fliers and a Mac (not a multiscreen theater complex à la expo), and the person behind the counter was, more often than not, the actual developer. Around every corner was another product delivering significant new functions or attacking some annoying bottleneck.

The most spectacular Internet newcomer was Roaster, Natural Intelligence Inc.'s Java development system. (Now if Netscape Communications Corp. would only deliver a Java-enabled browser for the Mac.)

But what impressed me even more was the number and variety of less glamorous offerings. Foresight Technology Inc.'s CalendarSet/CGI, for instance, turns a page into a Now Up-to-Date-like shared calendar; Lundeen & Associates' Web Crossing creates Web-based messaging forums; and Maxum Development Corp.'s RushHour helps maintain server performance by offloading image serving.

Opening doors, building bridges

In the impediment-elimination category, Open Door Networks Inc.'s Home Door lets a single Mac server respond to multiple domain names, and Main Event Software's Dogpatch solves some technical glitches with AppleScript-based CGIs (Common Gateway Interfaces). Web Broadcasting Co.'s Web FM 2.0 creates a bridge between a page and a database in Claris Corp.'s FileMaker Pro 3.0; a number of other products do the same for ACI US Inc.'s 4th Dimension.

Adobe PageMill continued to turn heads — Apple Fellow Guy Kawasaki showed it off, for the second consecutive expo, in his "hot new products" keynote. Personally, I was more excited to see a Mac version of Vermeer Technologies Inc.'s FrontPage, a highly regarded HTML editor previously available only on Windows.

Buckley argued that the Internet has changed all the rules — and changed them in Apple's favor. If that turns out to be true, most of the credit will go not to the company, but to the ever-innovative developers. □

Henry Norr, editor emeritus of MacWEEK, welcomes feedback in the MacWEEK forums on CompuServe or eWorld or at henry_norr@macweek.com.

LETTERS

Pity the fool

Apple, after admirably jumping into the game with its plug-and-play Internet servers, has almost completely let its leadership position slide. Who on Guy's team is asleep at the wheel? This month the Mac community was snubbed twice right in its own backyard.

First, Macromedia Inc. released the beta version of Shockwave for Windows 95 and NT only. (Macromedia!) Then Adobe Systems Inc. released Amber for Windows. What OS did these organizations build their fortunes on? Director, PageMaker, Photoshop and Illustrator (and on and on) existed successfully for years on the Mac before their Windows siblings were born. Now these companies ignore their very roots. I'm glad I'm not Apple's evangelist to either of these companies, and I pity the fool who is.

Lawrence Guzzetta
Ingram Micro Inc.
Irvine, Calif.

Resolution resolution

Your article on the new panoramic digital camera (12.04.95, Page 1) contained a factual error.

The claim that an image of 52,000 by 6,000 pixels corresponds to a film size of 5 by 54 inches is highly exaggerated. Ordinary color film has a resolution of about 100 lines per millimeter. At two pixels per line, the digital camera's resolution is equivalent to a film size of about 1.2 by 10 inches, significantly less than professional-grade panoramic film technology, which uses a film width of just under 60mm — about 2.25 inches.

John Lehman
Executive director for networks and telecommunication
University of Alaska, Fairbanks

Advice from a dropout

Joanna Pearlstein's glowing story "Apple reconstructs developer structure" (11.27.95, Page 22) mentions some encouraging specifics, especially the reappointment of Guy Kawasaki to head of developer evangelism. But the general impression was misleading.

I am unaware of any developer dropouts, such as myself, returning to the pricey program as a result of recent improvements. An especially curious item to an old-timer is the praise for Apple's loosening of "seeds" so selected developers can test their software on the "newest hardware." At the time I signed on, Apple was promising that all Macs would work the same, so such testing would never be needed.

If Apple is serious about developer relations, here are some suggestions:

1) Stop bundling.
2) Sell off Claris.
3) Make developer relations the responsibility of each and every Apple employee.
4) Fix Apple bugs, and not just when they affect Claris or some other pet.
5) Recognize that help for a "nominal" fee may be no help at all.
6) Adhere to Apple's own published interface guidelines.
7) Reinstate the original fee structure.
8) Make the primary requirements for management jobs actual use and experience with the Mac, e-mail and the Internet.

Wayne Bostow
President
Bostow International
Houston

Lousy track record

I read with interest the article regarding Newer Technology Inc.'s forthcoming PowerPC 603e daughtercard upgrade for the PowerBook 500 series (12.11.95, Page 1). I'm pleased to see that there will be an alternative to Apple's upgrade.

What I am displeased about is Apple's continued pushing back of the release date for its daughtercard. I've been anticipating the upgrade almost since I bought my 520c in September 1994. Apple's "Ready for PowerPC Upgrade" sticker still sits prominently on the computer. I waited until the summer of 1995. I waited through October, then November and December only to be told that "Apple plans to ship its daughtercard in January."

Worse than that, I find later in the article that Newer's may be my only option, as "Apple plans to build only a limited quantity of upgrades, and most of those will be sold in Europe." I feel cheated by a company that I've supported for many years and continue to support.

One wonders if Apple will ever offer processor card upgrades for the 7500, 8500 and 9500. With its track record, I'm not counting on it.

Larry West, MIS administrator
The Voyager Co.
New York

How to contact MacWEEK

Send letters to MacWEEK, 301 Howard St., 15th Floor, San Francisco, Calif. 94105; fax (415) 243-3651. We can be contacted on-line: CompuServe, 76077,1351; eworld, MacWEEK; MCI, 323-1203; Internet, letters@macweek.com. Include your name, address and phone number. We reserve the right to edit for clarity and length.

THE MAC MANAGER DON CRABB

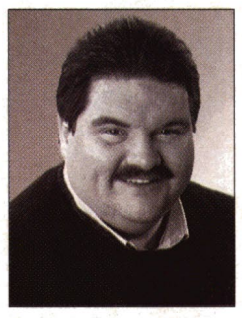
Apple may be moping, but the Mac is smoking

Thud! Apple loses $68 million on sales of more than $3 billion. Boom! Apple fires vice presidents by the bushel basket. Crash! Apple puts in motion a *real reorganization* that may cut from 1,000 to 3,000 employees from the rainbow dole.

So why am I so damn optimistic about the future of the Macintosh? Because the Mac has a future, even if Apple does not.

Geeks and clones

At Macworld Expo in San Francisco this month, the enthusiasm was back — with a vengeance. For the first time in a couple of years, expo felt like, well, Macworld Expo, instead of like Macintosh Comdex. Why? Two words: "Geeks" and "clones."



Thanks to the Internet, the Web, OpenDoc and Copland, the geeks are back. This time around, they're younger, smarter and more savvy than we were in 1984. They get it. And they're hammering Apple and themselves to produce those enriching, compelling applications that we all yammer about but never seem to find.

I saw more clever, cutting-edge applications from small vendors than I have seen from the past three years of expos combined. A good example is Casady & Greene Inc.'s Solutions. Written by veteran Mac developer Dave Wilson and his son Steve, Solutions does for numerical calculations what Claris Corp.'s new FileMaker Pro 3.0 has done for databases — make it obvious, elegant and simple to calculate accurate results without being a programmer or mathematician.

Solutions isn't going to put Microsoft Excel out of business, but it does give Mac users an alternative. By making calculations as simple as dragging and dropping a formula, your results become more consistent, and it's much easier to share models across departments or whole companies because the logic of what's going on is right in front of your face, not hidden in some proprietary text-based formula operators in cells.

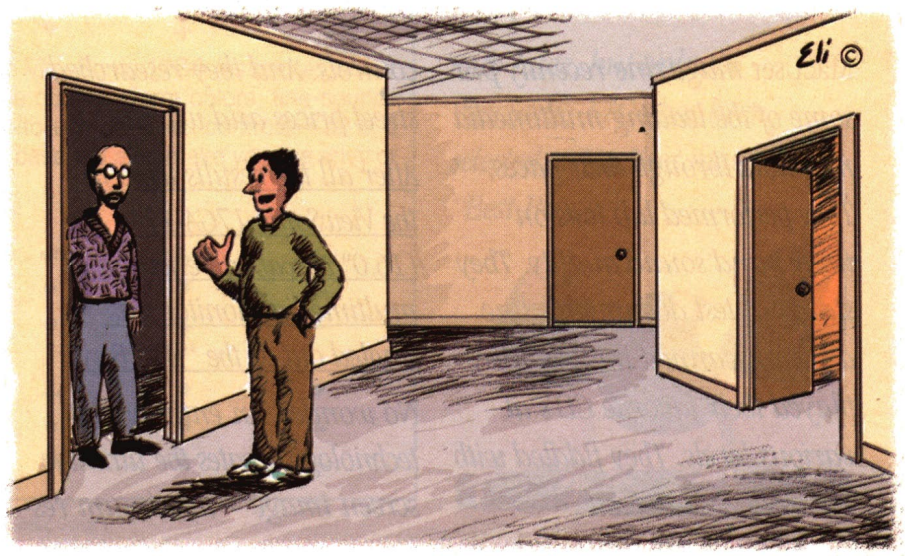
I lost count of all the slick beta OpenDoc parts I saw at expo, and then there were all the Web widgets, drop-ins and other mini-apps that make it possible for mere mortals to create Web sites or do database publishing. In addition, bigger products from larger companies, such as JAM 7 from Jyacc Inc., Power Objects from Oracle Corp., the Tango/Butler DB publishing solution from EveryWare Development Inc. and Roaster from Natural Intelligence Inc., all prove that innovation on the Mac ain't dead — no matter what happens to Apple.

The Mac OS lives

Besides the dramatic return of the Mac developer, the Mac OS was boosted at the show by the cloners. Power Computing Corp., frankly, was awesome. Between the new high-end PowerWave PowerPC 604 machines and the cleverly configured entry-level PowerCurve 601 machines, they have got our machine needs figured out. With huge and growing sales orders, it's clear that Power Computing is driving Mac OS machine innovation — and giving us a reliable (after some growing pains) second source for Macs.

Once the PowerPC Platform hits midyear and we see the big Intel-standard PC cloners sign on to the Mac OS, our future will be confirmed, and we'll be able to buy Mac OS machines without giving any thought to what happens in Cupertino. □

Don Crabb welcomes comments at his Internet address decc@cs.uchicago.edu. You can also check out his home page at http://cs-www.uchicago.edu/~decc/.



"My modem is broken. Do you mind coming over to my place tonight to chat?"

Comments? Ideas? Contact Eli at elitoons@aol.com

When it comes to rating multimedia monitors,

AppleVision® 1710AV

$1159*

MacUser *magazine recently put some of the leading multimedia monitors through their paces. They performed lab tests on image and sound quality. They stared at test documents, line art and scanned images. They played their favorite CD's at various levels. They fiddled with knobs and on-screen controls. And they researched street prices and warranties.*

After all the results were in, the ViewSonic 17GA 17" (16.0" viewable) PerfectSound™ multimedia monitor was singled out as the "Best Buy."

No wonder. An entirely new technology creates the ultimate screen image – maximum resolution of 1,280 x 1,024, refresh rates as high as 160Hz, and razor sharp screen definition.

And listen to this. High fidelity speakers are integrated into the monitor bezel so the full, rich stereo sound envelopes you. To quote a satisfied customer, "It rocks, man!"

MacUser RATED DECEMBER 1995

And the 17GA is so attractively priced, it's like getting the multimedia feature for free. Several competitive models cost as much but are not even multimedia monitors.

Rather than toot our own horn, perhaps we should refer you to MacUser *magazine:*

(800) 888-8583 Dept. (701) • (909) 869-7976 Fax: (909) 869-7958 • Call FaxSonic at (909) 869-7318 (24-hour fax-on-demand) • Request Doc. 150 • Internet: http://www.viewsonic.com • © 1996 ViewSonic Corporation. Corporate names and trademarks are the property of their respective companies.

mice are nice but checks are better.

ViewSonic® 17GA

$850*

"A real multimedia bargain," they said, "the ViewSonic 17GA offers solid image quality, warm colors, fine-sounding audio and a slew of easy-to-use on-screen controls." So when you're ready to buy, remember this: Many 17" (various viewable) multimedia monitors come with mice, but only the ViewSonic 17GA has been selected as MacUser *magazine's "Best Buy."*

+/OUTSTANDING •/ACCEPTABLE −/POOR

RATING	PRODUCT	PRICE	SUPPORT	IMAGE QUALITY	SOUND QUALITY
★★★★	**ViewSonic 17GA**	•	•	+	•
	A real multimedia bargain, the ViewSonic 17GA (estimated street price, $850) offers solid image quality, warm colors, fine-sounding audio, and a slew of easy-to-use on-sreen controls—all at a competitive price. The stylish case will also make you the envy of your office mates.				
★★★★	Apple Apple Vision 1710AV	−	•	+	+
★★★½	IBM 17S/S	−	•	•	+
★★★½	Nokia 447W	•	•	+	−
★★★½	Panasonic Pana Media 17	•	+	•	•
★★★	Philips 17B	•	•	•	−
★★½	Philips Brilliance 15A	•	•	•	−

Reprinted from "MACUSER," December 1995, Copyright © 1995 Ziff-Davis Publishing Company.

* Estimated street price per "MACUSER" magazine, December 1995.

ViewSonic®

MacWEEK Guide to Digital Video

The Mac and QuickTime have put nonlinear video editing front and center in professional suites. We examine corporate video, report on the Power Mac 8500, look at how TRW makes in-house CDs and suggest how Apple might keep up the momentum.

L. TAARKANEEN/LSD

In-house production a cost-effective reality

By Connie Guglielmo

When it comes to digital video and the Macintosh, it's 1984 all over again. Just as it was on the brink of transforming print communications with help from Aldus PageMaker and the LaserWriter in the mid-1980s, the Mac today, users say, is on the brink of transforming video communications.

This video revolution is being made possible by the emergence in the past few years of a combination of software and hardware tools, notably heavy-duty Power Macs with built-in audiovisual processors; video-digitizing and video-output hardware capable of handling a wide variety of formats; a cross-platform standard in Apple's QuickTime that includes basic compression and decompression technologies; off-the-shelf video editing; special-effects and authoring software; and high-speed, low-cost 1-Gbyte drives for storing memory-hungry digital video data.

While the positive effects of the technology advances are being felt in Hollywood, so too is corporate America reaping the benefits. We look here at those in-house producers making use of — and saving money with — Mac-based video systems.

"A great filmmaker once said that film will never be a great art until film and camera are as cheap as pencil and paper," said Peter McWilliams, a Los Angeles-based computer book author who will publish a book and video in March describing the video-authoring revolution being made possible by the Mac. "But when you look at 35mm film, it costs about $1,000 in film and development for 11 minutes of content. Video authoring is the pencil and paper of the future. You can buy a videotape for $5.99 and store five hours of images on it. And along comes video-authoring software that works on the Mac. Suddenly, for the cost of the Mac, software and a video-capture board, you can do potentially broadcast-quality, marketable or, at the very least, sharable video. You're an author in the new world of images and sound."

Video in

Getting video into the Mac means capturing, digitizing and converting analog video — composite, S-video (Super VHS or HI-8) and component (such as the professional-quality Betacam SP), or both — into the Mac's RGB digital format one frame at a time. Real-time video runs at 30 frames per second.

Apple's Quadra AVs and Power Mac AVs are video-ready, offering built-in digital-to-analog-converter chips, but there are caveats to capturing video and sound. The Quadra and Power Mac AV models vary in their support for composite and S-video. The Power Mac AVs, for instance, have two jacks for S-video but require installation of special adapter cables (which are included with the system) to bring in composite video. Standard Power Mac users who want to do video capture need to buy a video-input and video-output card from Apple or a third party. Sound is a problem on all AV Macs; an adapter is required to bring sound from a camera or VCR into the Mac's audio input.

While some corporate users have found that the built-in digitizing capabilities of the Power Mac serve their needs (see story, Page 30), users working with high-quality video, such as Betacam SP, who want to include CD-quality audio with their video, or who may require multiple input and output connections, have turned instead to specialized video-digitizing hardware systems from third-party developers such as Truevision Inc., Radius Inc., Avid Technology Inc. and Data Translation Inc.

Truevision offers two versions of its Targa 2000 Pro card for the Mac: NuBus and PCI. The Targa supports the NTSC (U.S.) and PAL (European) video standards, 24-bit color monitors up to 1,152 by 870 pixels, 16-bit audio I/O, QuickTime and Motion-JPEG compression and decompression. A distinguishing feature of the Targa is that it writes digitized video directly to a hard disk, bypassing the Mac CPU; that's possible because the Targa includes on-board RAM for frame buffering, with the base configuration shipping with 20 Mbytes of RAM.

Having made a name for itself in the video market with its popular VideoVision 2.0 capture and compression NuBus board for composite and S-video, Radius last year introduced a professional system called the VideoVision Telecast that is based on QuickTime technology. The stand-alone box offers full-screen, full-motion capture and playback of component (Betacam SP) video, as well as composite and S-video (which are digitized using the VideoVision Studio card). Telecast also supports NTSC, PAL and SECAM (French) video and four tracks of 16-bit audio synchronized to the video. Variable compression rates are also supported; the lower the compression rate, the fewer the trade-offs in image quality. Radius has also developed its own Radius Edit software for manipulating video.

Data Translation has carved a niche out of the desktop video market with its popular Media 100, which it upgraded last year by replacing the two NuBus cards that made up the subsystem with a single PCI board. Called Vincent, the PCI board runs on the Power Macintosh 9500/132, 9500/120, 8500/120 and 7500/100. The Media 100 accepts S-video, composite and component video and supports QuickTime and Motion-JPEG at compression rates lower than 4-to-1. The system ships with Media 100 2.5 software, which supports eight real-time 16-bit audio tracks; special effects; and color controls for adjusting tint, saturation, contrast and brightness. Data Translation offers an additional package for creating edit-decision lists (EDLs) and special effects for $3,995.

A longtime provider of nonlinear digital-video tools, Avid offers a range of hardware and software solutions, including the Media Suite Pro, a desktop system featuring PCI boards for digitizing and compressing video, and the real-time, professional-level Media Composer series, its high-end system.

ImMIX Inc. also offers high-end nonlinear systems. Its VideoCube and TurboCube, which start at $42,500, and its VideoCube Lite, which starts at $33,500, put a Power Mac front end on a system that offers a minimum of one hour of on-line-quality video and two hours of CD-quality audio, high-fidelity speakers, Mac and NTSC or PAL monitors, built-in editing software, and support for real-time effects and editing. In addition to QuickTime, both the VideoCube and TurboCube support QuickDraw GX in a real-time titling application that's included with the system.

Users have embraced these Mac-based systems because the quality of video production offered can be compared to traditional, proprietary video solutions — but at a fraction of the cost. "With traditional tools, you have to own a whole lot of equipment to do the things I can do on the desktop," said Ron Lindeboom, president of Quantum Media Inc. in Cambria, Calif. Lindeboom uses a Power Mac 8100 with 80 Mbytes RAM, 18 Gbytes of storage and a Media 100 to produce videos for

See Digital video, next page

Hollywood goes digital video

If having a starring or even supporting role in a Hollywood production is a sign that you've arrived, then Macintosh-based digital video technology has definitely arrived.

Recognizing that desktop technology is less expensive and more flexible than proprietary video-editing equipment, Hollywood producers are starting to incorporate Mac tools at all levels of production — from creating comps and storyboards to previewing effects to creating broadcast-quality productions.

Old dogs, new tricks

Ocean Video in Beverly Hills, Calif., has made a business of advising film, video and multimedia users on how Mac-based tools, specifically Data Translation Inc.'s Media 100, can redefine movie making, according to co-founder Jeb Johenning. With his partner, Richard Goodman, Johenning has helped producers use the Mac and the nonlinear digital-editing system on the set during filming. The setup they recommend for broadcast-quality editing costs about $40,000 and can store two hours of broadcast-quality video. That setup includes a Power Mac 9500 with 80 Mbytes of RAM, 18 Gbytes of storage, a broadcast-quality NTSC monitor and a Betacam tape deck. Software includes Adobe After Effects and Photoshop.

"Directors take a video recording of a movie while it's being filmed so that they can play back a scene and not wait for the film to be developed," Johenning said. He said that since movies are not shot in sequence, having video allows the crew to check for continuity between scenes that may have been filmed days or weeks apart. But waiting while rewinding tape or fast forwarding to a scene that was recorded at the end of another tape can consume lot of time, and in movie making, time is money.

"We said, 'Why not digitize the video as it's being shot?' " Johenning said. "Instead of having to fast forward and rewind through tapes, directors can now click and pull up a scene that was shot a few weeks ago and compare it with one that was shot today. They can play it again instantly, or line up scenes and play them in a different order. That would not have been possible without a nonlinear digital editor."

Previews on the other coast

Video aired on the HBO network is produced in the cable channel's high-end studios in New York, and Lisa Lloyd, a designer for creative services and on-air promotions has used her Mac and Adobe Premiere to preview images and create comps of the opening and closing titles.

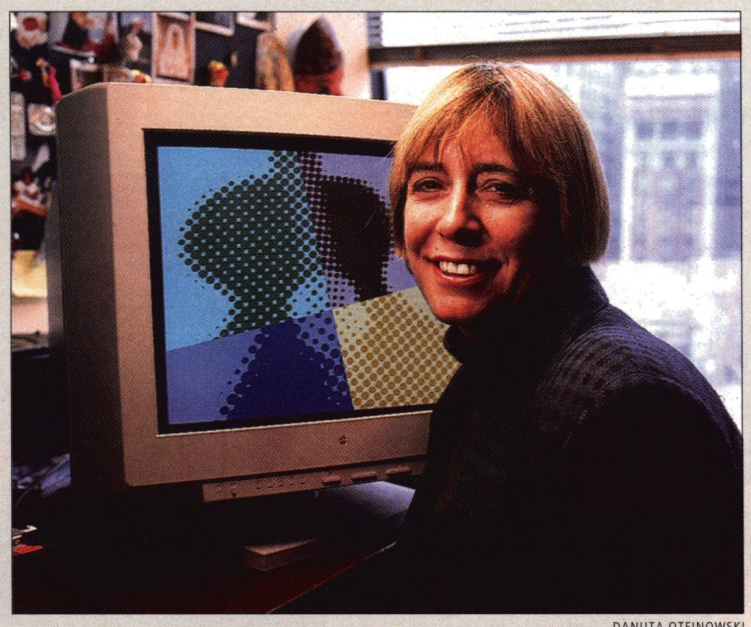
"I can go through the approval process and create something with Premiere without actually doing an on-line edit," Lloyd said. "If you can get approval on something that is a prototype that looks close to the final, get comments and makes changes before going into an edit suite where it costs something like $700 per hour, then everyone is happier. I'm pretty confident that between the motion I can create in Premiere and the ability to layer images and work them in Photoshop, I can show people a pretty exact replica of what the final product will be."

For Robert Chesney, executive producer for a business cable show called "Window on Wall Street," which is produced by Irvine, Calif.-based Chesney Communications, the Mac and video-production tools such as the Media 100 have enabled him to price his own show.

On the air

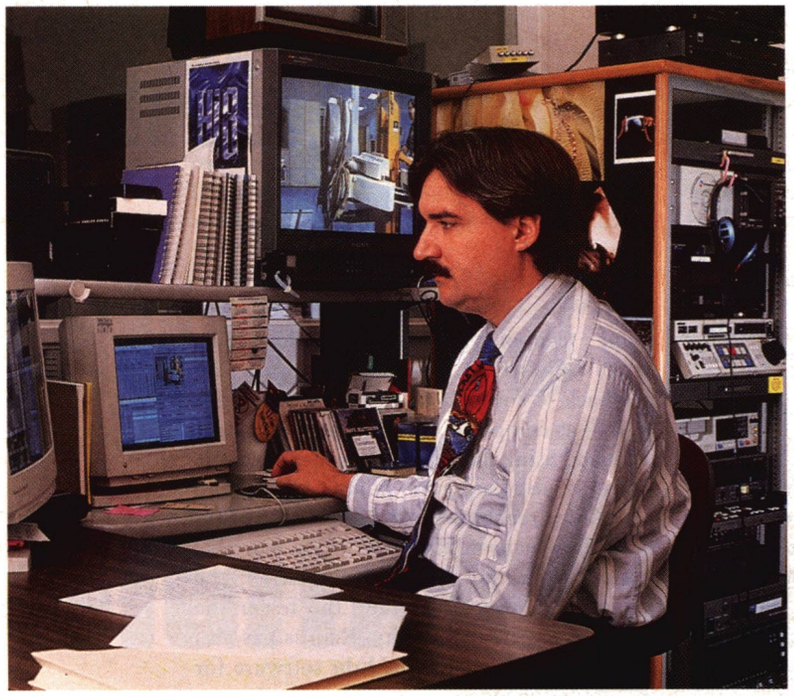
"In the past, I would have had to budget from $100,000 to $250,000 a year to keep up with high-end equipment," said Chesney, whose business infomercials have aired for 17 years. "Since I put the Mac system in place, I hardly have to spend a dime."

Chesney's studio includes a Mac Quadra 840 and a Power Mac 8100 with 94 Mbytes of RAM and 12 Gbytes of storage. "When you're putting together a show, you have no conception of how long it is," Chesney said. "If you need to cut or add, you have to rebuild the video. But with the digital equipment, you can see timing digitally and know exactly how long each segment is and what it all adds up to before you print to video. It just changes the whole video-editing experience." — By Connie Guglielmo



DANUTA OTFINOWSKI

Lisa Lloyd, a designer for creative services and on-air promotions at HBO, uses her Mac and Adobe Premiere to preview images and create comps.



WARREN FAUBEL/BLACK STAR

Thel Rountree, multimedia group leader for Toshiba America Medical Systems, oversees a Mac-based production unit that produces seven to 10 videos per year.

Digital video

From previous page

clients, which include San Francisco-based Pacific Gas & Electric Co. "I usually don't have the budget for a lot of experimentation," Lindeboom said. "But with the Mac, I can create processes and techniques that my clients could not [normally] afford to have me do because of the high per-hour costs of using traditional equipment."

Next step: Editing and effects

After digitizing the video, Mac users can chose among several video-editing programs for assembling video sequences or clips, combining video and audio from different clips and adding special effects, such as transitions (wipes, dissolves and fades), before assembling these clips into a final sequence for output.

For the most part, these programs allow users to view video clips, made up of frames of digitized video, in either a storyboard or time-line window. There, individual frames or a series of frames can be cut, copied and pasted.

While there are low-cost editing programs available, including Radius' QuickFLIX!, Motion Works International's Multimedia Utilities and Nuts Technologies Inc.'s MediaFactory, users looking for more-precise editing tools have popularized programs such as Avid VideoShop and Adobe Systems Inc.'s Premiere, which supports complex transitions that rival dedicated systems.

The sophistication of these tools has started to attract users who make their living producing videos (see story, Page 25). Lisa Lloyd, a designer for creative services and on-air promotions for New York-based HBO Inc., uses Adobe Premiere to preview the titles and imagery she designs. "I prefer to have all options available to me," she said. "So I would rather use Premiere to preview the motion I intend to do to see whether what I'm thinking will work on screen before I lock myself into a video-editing session."

Seizing the opportunity to bring more transitions and special effects to would-be video producers, several developers offer programs designed specifically for manipulating video images and QuickTime movies. These range from Radius VideoFusion 1.6, which offers unique tools for colorizing images, to the top-of-the-line Adobe After Effects, which offers tools for compositing or layering videos, for adding filter effects and animating effects over time, and for extremely smooth playback for images transferred to video.

The market also includes Gryphon Software Corp.'s Dynamic Effects and Avid's TransJammer, both of which work with VideoShop and AfterEffects to deliver transition and motion effects. For users interested in distorting images, morphing programs — where one image is smoothly transformed into another image — include Avid's Elastic Reality; Gryphon's Morph; and The Valis Group's MovieFlo, a collection of warping tools.

Users said they also consider traditional graphics programs — including Adobe Photoshop and Illustrator, Fractal Design Corp.'s Painter and Specular International Ltd.'s Infini-D for 3-D work — core tools for video users.

"What makes it possible to do successful video editing in the Mac environment is that all the tools work well and integrate together," said Thel Rountree, multimedia group leader for Toshiba America Medical Systems, a division of Toshiba Corp., in Irvine, Calif. Rountree oversees the company's production of seven to 10 videos per year, which range in length from seven to 40 minutes. Production is done on a Power Mac 8100, with Media 100 and programs including Adobe Premiere, After Effects and Photoshop. "There's no one system that I've seen anywhere that does it all," Rountree said. "You have to have the combination of hardware and software and the seamless integration among programs that systems like the Mac can and Windows can't offer."

QuickTime's the right time

Most users agree that the glue that holds a majority of the digital-video capabilities of the Mac together is QuickTime, Apple's system-level technology that provides a standard interface for working with video hardware and software, cross-platform support between the Macintosh and Windows environments, and compressor-decompressors (codecs). While

See Digital video, Page 28

VIDEO-EDITING SOFTWARE

ADOBE SYSTEMS INC.
Premiere 4.0: $795
Mountain View, Calif.
(415) 961-4400 or
(800) 833-6687

AVID TECHNOLOGY INC.
VideoShop 3.0: $395
Tewksbury, Mass.
(508) 640-6789 or
(800) 875-4699

MOTION WORKS INTERNATIONAL
Multimedia Utilities: $99
San Francisco
(415) 541-9333 or
(800) 541-8068

NUTS TECHNOLOGIES INC.
MediaFactory: $199
Santa Clara, Calif.
(408) 980-7800

RADIUS INC.
QuickFLIX! 1.1: $149
Sunnyvale, Calif.
(408) 541-6100 or
(800) 227-2795

VIDEO-DIGITIZING SYSTEMS

AVID TECHNOLOGY INC.
Media Suite Pro (for Power Macs): $7,995
Media Composer: $17,000 to $19,000
Tewksbury, Mass.
(508) 640-6789
or (800) 949-2843

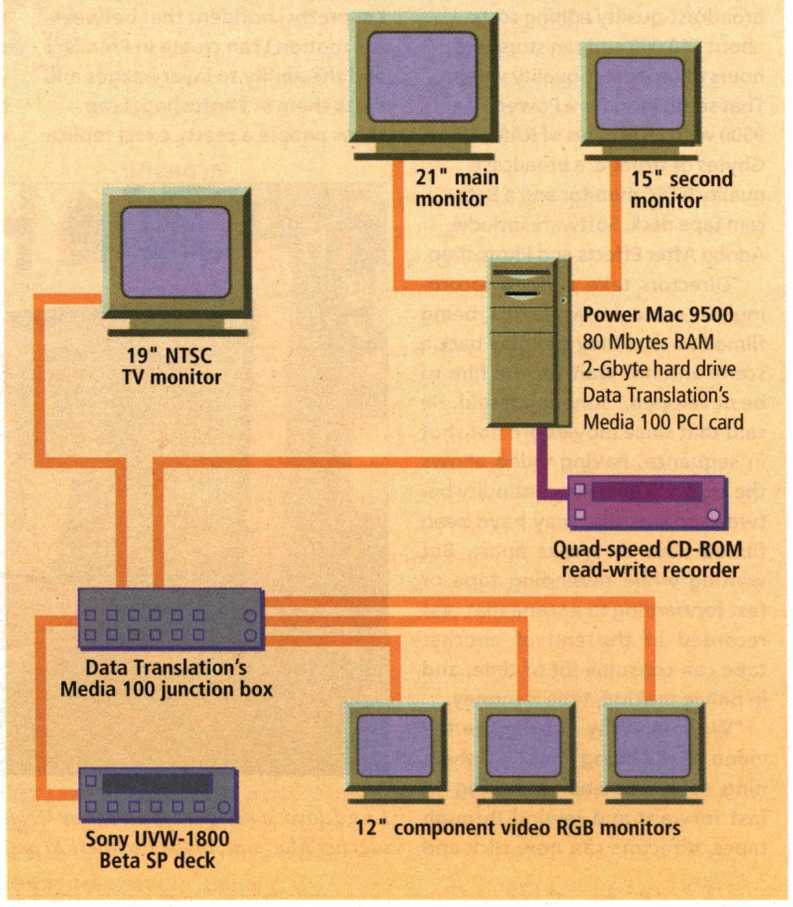
DATA TRANSLATION INC.
Media 100: $10,995
Marlboro, Mass.
(508) 481-3700

IMMIX INC.
VideoCube Lite (fully configured Mac system without monitor or speakers): $33,500
VideoCube: $42,500
TurboCube: $42,500
Grass Valley, Calif.
(916) 272-9800

RADIUS INC.
VideoVision Studio 2.0: $4,849
VideoVision Telecast: $9,995
Sunnyvale, Calif.
(408) 541-6100
or (800) 227-2795

TRUEVISION INC.
Targa 2000 PCI: $5,795
Targa 2000 NuBus: $5,495
Santa Clara, Calif.
(408) 562-4200
or (800) 729-2656

A typical "good" system for CD-ROM production


21" main monitor
15" second monitor
19" NTSC TV monitor
Power Mac 9500
80 Mbytes RAM
2-Gbyte hard drive
Data Translation's Media 100 PCI card
Quad-speed CD-ROM read-write recorder
Data Translation's Media 100 junction box
Sony UVW-1800 Beta SP deck
12" component video RGB monitors

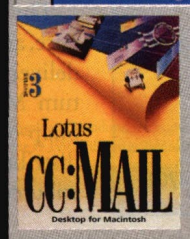
Lotus

The power of people working together.

Introducing cc:Mail for Macintosh Release 3.0.

Lotus cc:Mail™ for Macintosh® Release 3.0 lets you send and receive virtually anything you can create to virtually anyone, on any mail system, anywhere in the world. It doesn't matter whether other users you talk to work on Macs or computers running DOS,® Windows,® or OS/2.® cc:Mail's 100+ file viewers let you read and print file attachments, developed on other operating systems and platforms. Call 1-800-872-3387, ext. B496* or explore Lotus on the World Wide Web at www.lotus.com for more information.

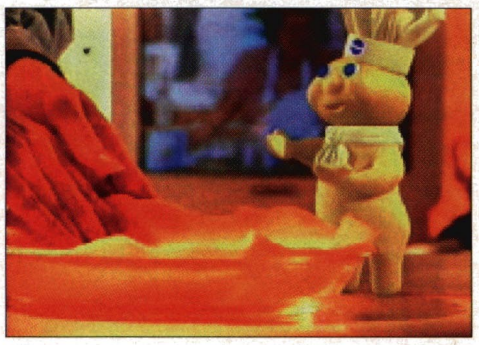
cc:Mail for Macintosh



cc:Mail is the most comprehensive e-mail system for the Macintosh. The new Release 3 features include: built-in AppleScript support which lets you drag-and-drop commonly used addresses, folders, and other objects to the desktop for easy accessibility; cc:Mail Rules which makes managing your e-mail easy by automating everyday tasks; and cc:Mail Viewers which let you view and print attachments even if you don't have the application with which they were created. When it comes to e-mail for the Macintosh, nothing is more complete or easier to use than cc:Mail.

*In Canada, call 1-800-GO-LOTUS. ©1996 Lotus Development Corporation, 55 Cambridge Parkway, Cambridge, MA 02142. Lotus and Working Together are registered trademarks and cc:Mail is a trademark of Lotus Development Corporation. All company names are registered trademarks of their respective companies.

Ron Lindeboom at Quantum Media produces music videos using a Power Mac 8100.



The Aim 21 system lets users digitize and archive video clips such as this Pillsbury ad.

Digital video

From Page 26

QuickTime supports the codec supplied with the digitizing system being used, it also includes the fast, but lower-quality Apple Video codec and the higher-quality Cinepak codec developed by Radius, which provides fast playback but slow compression.

"Apple has to be thanked and acknowledged for coming up with QuickTime and making it compatible with the Windows environment," McWilliams said. "Apple's decision to make it readily available and to distribute it has helped make it a standard, but also the technology was done right."

Its flexibility pleases many users.

"Because QuickTime works in all applications, we can take a clip and drag it from one program to another without worrying about whether or not it will work," said Wayne Abler, senior producer and director for Snap-on Inc. in Kenosha, Wis. Abler uses the Mac, Media 100, a Video Explorer video-output controller board and a variety of software programs as a character-generation system for creating titles for the corporate videos his group produces. A traditional video-editing suite is used for most video production. "There are still advantages to using the video-editing suite, but we found that the possibilities are endless working with the Mac and QuickTime, and that's why we went the digital route," Abler said. "We wanted to be able to have all the capabilities rather than lock ourselves into a dedicated character generator."

At Toshiba, QuickTime makes it possible for Rountree and his group to create interactive training CD-ROMs. While the majority of production is done on the Mac, playback is exclusively on Windows-based PCs. "Yes, we use QuickTime's cross-platform capabilities," Rountree said. "It's what keeps us in business."

Target marketing

Developers with specialized tools for organizing, archiving and distributing digital video have also come into the market. emotion Inc. offers a turnkey software system for managing the distribution and flow of bandwidth-intensive multimedia content, including digital video and photos, over networks. Called CreativePartner, the software lets users review and annotate content, frame by frame, with graphics pens, text and voice.

Aim 21 Inc. offers a video, audio and print information management and archiving system targeted at advertising firms and media companies. The Pillsbury Co. in Minneapolis started using Aim 21 in 1992 to digitize and index on laser disc its archive of some 7,000 television commercials, which date back to the 1950s, said John Chomeau, brand communications manager. The commercials are constantly reused in corporate presentations and in new ads; in the past, that meant staff had to play through numerous tapes to find the segments needed — a time-consuming process.

With Aim 21, all the video is a mouse click away, and presentations can be assembled easily using Aim 21's playlist tools, which queue the video for output to videotape. The Aim 21 system is run on two Mac 840 AVs equipped with 16 Mbytes of RAM and 1 Gbyte of storage. "It's become a multimedia presentation manager for us," Chomeau said. "We've got everything digitized now — graphics, radio commercials, TV ads, video biographies, posters — and every time a new video is created, it's automatically digitized."

Video out

The video-digitizing hardware described above allows users to output digital video in a variety of formats, including various videotape formats (VHS, high-quality D1 and D2, S-video, etc.). Video can also be exported to laser disc or exported as QuickTime movies or even PICT files to other Mac applications, such as Macromedia Director, as part of an integrated multimedia application for playback on CD-ROM.

The playback media depends on the audience, and the advantage of the Mac is that it can deliver to a variety of media. HBO and Quantum Media produce videos to be broadcast; Snap-on produces corporate videos commonly distributed in VHS format; and Toshiba distributes training applications on CD-ROM.

The playback media determines the quality of video used. Broadcast users expect full-screen, full-motion, high-resolution video, while CD-ROM producers, such as Toshiba's Rountree, have found that 75 percent to 80 percent of the Betacam SP video produced works well running at 240 by 180 pixels at 15 frames per second.

Endings

As much as developers would like to portray digital video as a point-and-click technology, video is RAM-intensive. Learning to use video-editing tools requires an understanding of how to work with images and sound — vastly different media from the familiar world of text and graphics.

Still, users say it's just a matter of time before most communications — from newsletters to memos — are replaced with video, distributed either on tape or live over high-speed networks. "Now one person can take a camera, photograph something, edit it, add music and graphics," McWilliams said. "It may not be the best-produced video, but instead of being a collaborative process as film and video production have been up until now, one person can be a producer. It's almost a new art form." □

VIDEO-EFFECTS AND GRAPHICS SOFTWARE

ADOBE SYSTEMS INC.
Photoshop 3.0: $895
Illustrator 5.5: $595
After Effects: $1,995
Mountain View, Calif.
(415) 961-4400 or (800) 833-6687

AVID TECHNOLOGY INC.
Elastic Reality: $350
TransJammer: $99
Tewksbury, Mass.
(800) 875-4699

FRACTAL DESIGN CORP.
Painter 3.1: $549
Aptos, Calif.
(408) 688-5300 or (800) 297-2665

GRYPHON SOFTWARE CORP.
Dynamic Effects: $79
Morph: $149
San Diego
(619) 536-8815
or (800) 795-0981

MACROMEDIA INC.
Macromedia Director 4.04: $1,195
San Francisco
(415) 252-2000
or (800) 288-4797

RADIUS INC.
VideoFusion 1.6: $399
Sunnyvale, Calif.
(408) 541-6100 or (800) 227-2795

THE VALIS GROUP
MovieFlo: $549
Tiburon, Calif.
(415) 435-5404 or (800) 825-4704

TURNKEY SOLUTIONS

AIM 21 INC.
Aim 21: $1,995 for one seat
New York
(212) 867-0110

EMOTION INC.
CreativePartner: $495 (two-user system) to $4,995 (50-user system)
Palo Alto, Calif.
(415) 812-9000 or (800) 385-6776

"Insignia Solutions has just released the new version of the PC emulator and it was worth the wait."

MacUser, October 1995

"With 486 emulation and 33-MHz 486 speed, SoftWindows 2.0 runs enhanced-mode Windows apps on Power Macs."

BYTE, December 1995

"SoftWindows 2.0 worked with my PC networks, provided PC sound support... and still worked with the Mac OS."

MacWeek, July 31, 1995

Only SoftWindows Could Make Mac & Windows Reviewers So Compatible.

"SoftWindows 2.0 effectively turns any Power Macintosh into two computers: One that operates in the traditional System 7.x operating system and one that runs the wide variety of Windows applications."

PC MAGAZINE, NOVEMBER 21, 1995

"The latest release of SoftWindows is a good combination of convenience, cost and performance for those who want Macintosh and Windows functions on one machine."

Network Computing, September 15, 1995

Mac OS

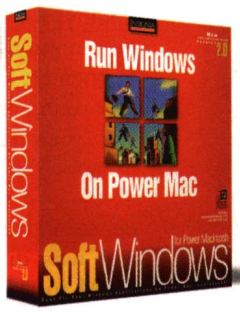
MICROSOFT® WINDOWS® COMPATIBLE

"SoftWindows 2.0 for Power Macintosh is the perfect fit for the business professional who needs the versatility of both a Macintosh and a PC on the desktop without the cost of two machines."

InfoWorld, November 6, 1995

"Power Mac users can rejoice in knowing that the buzz is true. Insignia's SoftWindows 2.0 delivers what it promised to do–and more!"

MacDigest, October 1995



For more information on new SoftWindows 2.0 call 1-800-848-7677

Ziff-Davis Europe Software Excellence Award 1994

Mac Home Journal 1995

Queen's Award for Technical Achievement 1993

Queen's Award for Export Achievement 1994

MacWorld World Class Award 1992

MacUser 4 Mice Rating 1993/1994

Byte Award of Distinction 1994

SoftWindows for Power Macintosh™

Run Windows On Mac

INSIGNIA SOLUTIONS

Insignia and Insignia Solutions are registered trademarks of Insignia Solutions Inc. SoftWindows is a trademark used under license. Microsoft and Windows are registered trademarks of Microsoft Corporation. Mac OS, Power Mac and Power Macintosh are trademarks, and Macintosh is a registered trademark of Apple Computer, Inc. MacUser, MacWeek and PC Magazine © 1995 Ziff-Davis Publishing Company. Network Computing © 1995 by CMP Publications, Inc. BYTE Magazine © by The McGraw-Hill Companies, Inc. All other trademarks are the property of their respective holders. © 1996 Insignia Solutions Inc., Mountain View, CA • Phone (415) 335-7100 • Fax (415) 335-7105.

8500 stands out as a video-editing platform

By Jeff Ubois

Since its release this summer, Apple's Power Mac 8500 has emerged as a popular desktop video-editing platform for both consumers and video professionals. At the low end, the 8500's built-in video capabilities are providing inexpensive, entry-level editing capabilities for new users, while at the high end, the machine's 120-MHz PowerPC 604 processor provides support for video professionals' more demanding tasks (see story below). And while sales of the 9500 have been sluggish, the 8500 is hard to find.

The 8500 differs from the 9500 in the speed of the 604 chip (the 8500 runs at 120 MHz, the 9500 at 120 or 132 MHz) and the number of PCI expansion slots (the 8500 has three; the 9500, six). Much of the 8500 was developed concurrently with the 9500; the 9500, however, has no built-in video capabilities as Apple chose to market it to a different segment, namely pre-press and publishing. The 8500's video capabilities differ from the slower 601-based 7500 because it has both S-video and composite input and output (the 7500 has input only). And the 8500 stands apart from the Quadra 840AV because of its PCI bus architecture and faster processing speed.

"We wanted to make desktop video easy to use for people interested in near-broadcast quality, for example, for in-house training, presentations or mock-ups," said Carol Carpenter, Apple's Power Mac product marketing manager. "The 8500 is a huge leap forward compared to the 840AV — it has a 64-bit video bus compared to a 32-bit bus; 24-bit color at up to 30 frames per second as opposed to 16-bit color at 8 fps; and uses direct memory access and video RAM for video capture and output, which reduces latency."

30 fps?

Users and vendors are divided about the real-world frame rates users can achieve with the 8500's built-in capabilities and the performance of the PCI bus. For its part, Apple is hedging its claims about frame rate because it depends largely on factors outside the company's control. "We are guaranteeing 25 frames per second, but depending on your hard disk and how you configure the software, you can get 30," Carpenter said.

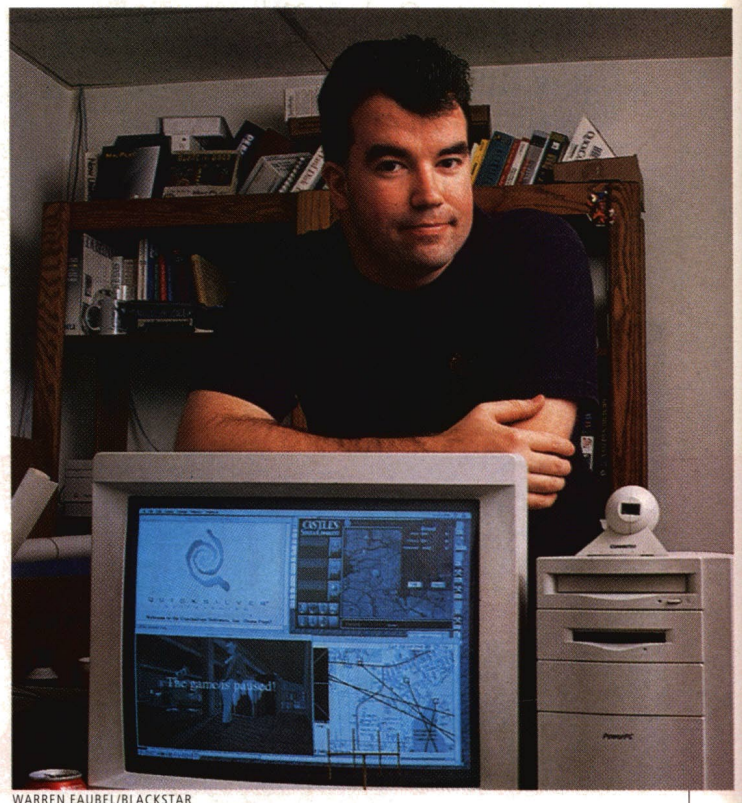
But some vendors say getting 30 fps on the 8500 is no problem, and many users have been able to tweak their machines to achieve it.

By most accounts, the 8500's PCI bus is considerably better than that of the 9500. PCI cards on the 9500 require careful installation and positioning, whereas the 8500 can accept cards in any order.

"The 8500 has far fewer bugs than the 9500, and with a high-speed array I can get 320-by-240 [resolution] at 30 fps using the installed video board," said Tim Taylor, quality assurance engineer at Truevision Inc. in Santa Clara, Calif.

That doesn't mean the 8500 is completely problem-free. "People claim the 8500 is second-generation PCI, but it does still have some of the problems of the 9500," Taylor said. For example, certain disk striping utilities don't function properly with Open Transport.

While the PCI bus clearly has the potential to offer significantly higher data rates than NuBus, the PCI bus is a performance downgrade — at least so far. "We are getting transfer rates on the PCI of 5 to 6 Mbps, and 6 to 8.5 Mbps with the NuBus, simply because we know more about how to tune it," Taylor said. "When will the PCI be faster than the NuBus? It may take another three or four months to get the kind of mastery we have with NuBus on the PCI."



WARREN FAUBEL/BLACKSTAR

Bob Barris produced an aviation video using a Power Mac 8500.

Working with built-in video

These specifications are sometimes deceptive guides to real-world production quality. "Don't be fooled by the numbers — one data stream at 4.5 Mbps looks great, another looks terrible," Taylor said. "You need to make your decisions based on your perceptions, not

See 8500, Page 34

CASE STUDY

Training by CD-ROM gets TRW employees up to speed

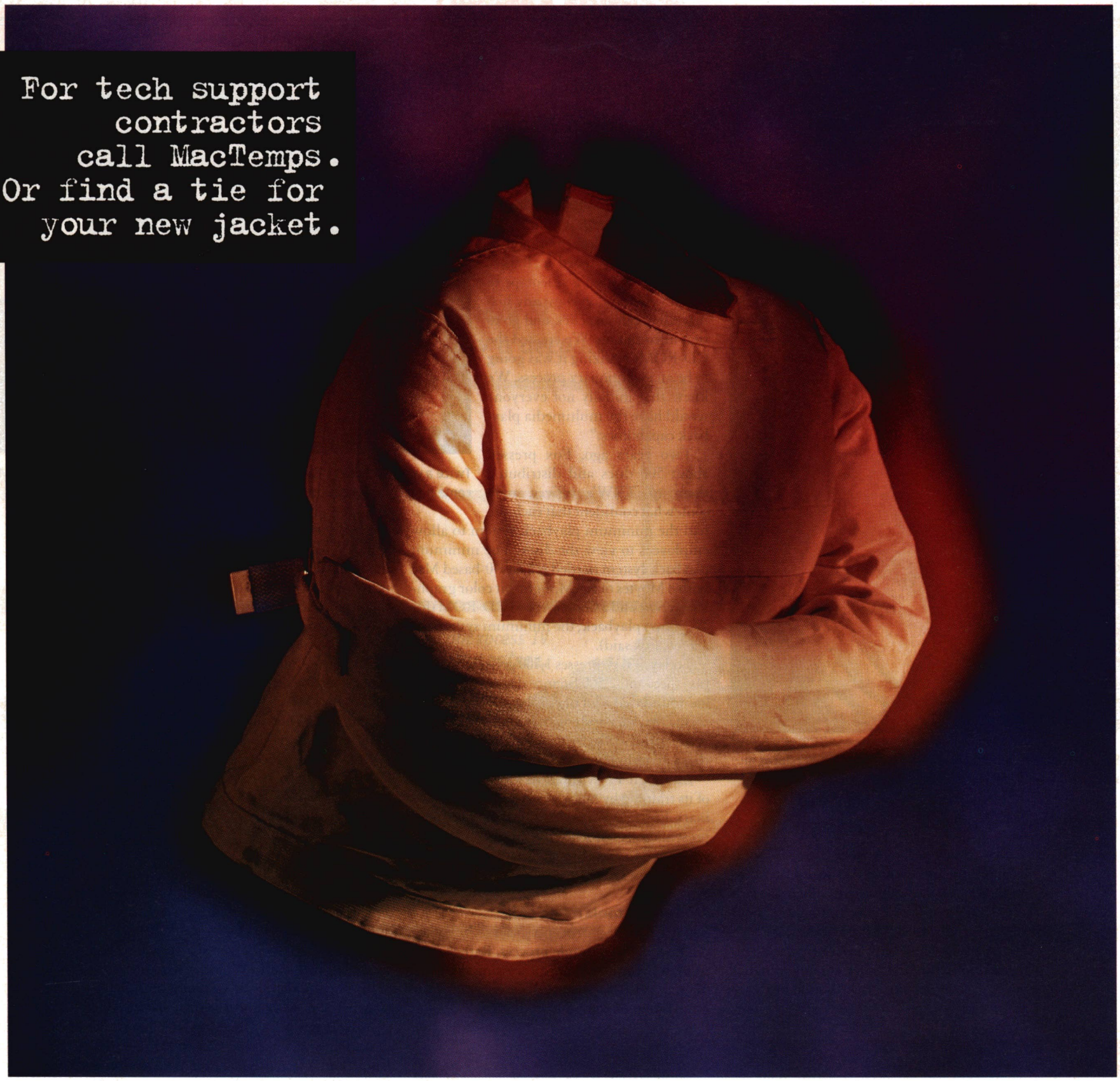
By Connie Guglielmo

Many video producers might shake their heads, roll their eyes and look at you as though you were strange if you told them you wanted to create interactive presentations with postage-size, slightly jerky digital video of "talking heads."

But to Neil Fox, manager of multimedia and Internet services for TRW Inc., headquartered in Cleveland, talking heads are a dream come true. Fox and his group have been creating corporate training materials on the Macintosh over the past two years, and those digital talking heads provide enough pizazz to turn TRW's digital presentations into highly effective training information — even with 16-bit color digital video running at 160-by-120 pixels at 15 frames per second (compared with full-screen video, which is 640-by-480 pixels, running at full motion, or 30 fps.)

"Video is becoming an integral part of the computer experience," Fox said. "All of the standards and expectations for digital presentations have been raised by what consumers are seeing in that market. But when most people talk about creating digital videos, they tend to focus on full-motion, full-screen video. What's neglected is the very useful talking heads that liven up training videos. You can fit a lot of video — even when the talking heads are in color — on a disk that way."

See TRW, Page 32



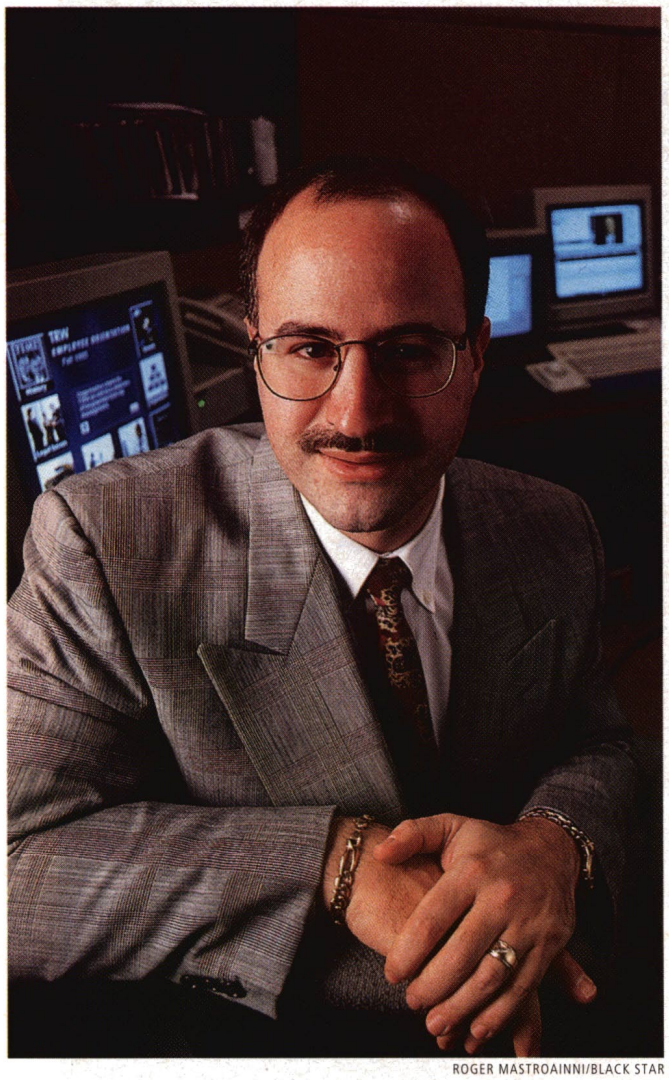
Instead of working until your friends in the white coats come to see you, call MacTemps for tech support contractors. They can help you with everything from DIMM and Ethernet card installation to software and system upgrades. They can even staff your help desks. And since MacTemps specializes in Macintosh personnel, we're the one agency that can send you Mac contractors who can hit the ground running. No training, no hassles, no headaches. Don't wait. Get in touch with us right now. And ask for a free list of tech support phone numbers. Or start thinking about what would match better: a flowered or paisley tie.

Call the MacTemps office nearest you at 1-800-MACTEMPS. E-mail us at info@mactemps.com, or visit our World Wide Web site at http://www.mactemps.com.

MacTemps

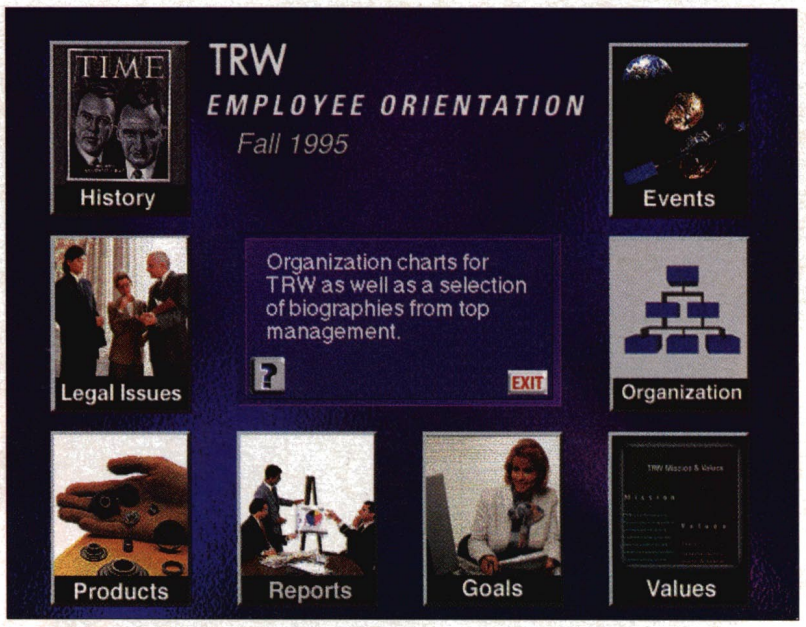
1-800-MACTEMPS®

Atlanta, Boston, Chicago, Cleveland, Dallas, Denver, Detroit, Houston, London, Los Angeles, Melbourne, Miami, Minneapolis, New Jersey, New York, Orange County, Paris, Philadelphia, Phoenix, Pittsburgh, St. Louis, San Diego, San Francisco, Santa Clara, Schaumburg, Seattle, Stamford.



ROGER MASTROAINNI/BLACK STAR

Neil Fox, manager of multimedia and Internet services, produces international training materials on a Mac-based system.



Twice a year TRW uses a Power Mac 8500 to produce a Mac/Windows CD-ROM containing employee information.

TRW

From Page 30

Two times per year since 1993, Fox has been producing a hybrid CD-ROM that runs on Mac and Windows systems. Two versions are created, with each disc containing about 20 hours worth of video information. One disc contains general employee orientation information, while the other contains finance orientation material for distribution by the finance department.

Before 1993, that material was presented to TRW's some 64,000 employees in 21 countries, including 200 sites in the United States, via on-site training seminars.

Playback: CD-ROM

"Why CD-ROM? Because it's interactive," Fox said. "Our intent is to give users the information they want when they need it. Rather than scan through a videotape to get information on company history, they can just click and go to that information. We created the CD-ROMs realizing it was going to be an evolutionary process. We knew that initially not everyone would have the multimedia playback capabilities."

Two years ago, Fox pressed about 500 discs and distributed them to TRW's offices, only somewhat confident that each site had the minimum playback system to allow employees to view the discs. The minimum playback system needed is a 68040-based Mac with 8 Mbytes of RAM, eight-bit color graphics support and a double-speed CD-ROM (for Windows playback, the minimum system is a 486/66, Fox said).

Today, TRW presses 1,500 general orientation discs and 2,500 finance discs because Fox has found that a lot of employees have multimedia playback systems at home. Plans are already in the works to produce a CD-ROM for the systems integration group in 1996.

Although TRW still does a significant part of its training by talking to employees in seminars, Fox said he sees the CD-ROM training presentations reducing the number of people who have to travel to sites because they can send the discs instead.

Production tools made easy

From a development perspective, creating digital video is a simple process. Rather than using a dedicated video processing board to digitize video into the RGB video used by the Mac, Fox uses the built-in digitizing-analog conversion capabilities of his Power Mac 8500AV. "We're just cramming the video into the built-in port of the Mac," he said. "For almost nothing, you can digitize pretty good quality video."

Video, stored in 16-bit color, is compressed to quarter-screen size (160-by-120 pixels) using QuickTime's built-in Cinepak compression-decompression technology from Radius Inc. It is stored at 15 fps. The video is then exported to Macromedia Director, an authoring program that runs on both Mac and Windows.

In Director, video is combined with other Mac-generated text, graphics, animations and sound to create the interactive training presentations. Fox said the core set of tools used by his staff and the outside contractors hired by TRW to tweak the video and create the Mac-based graphics and animations include Adobe Photoshop, Premiere and Illustrator; Fractal Design Corp.'s Painter; and Specular's Infini-D.

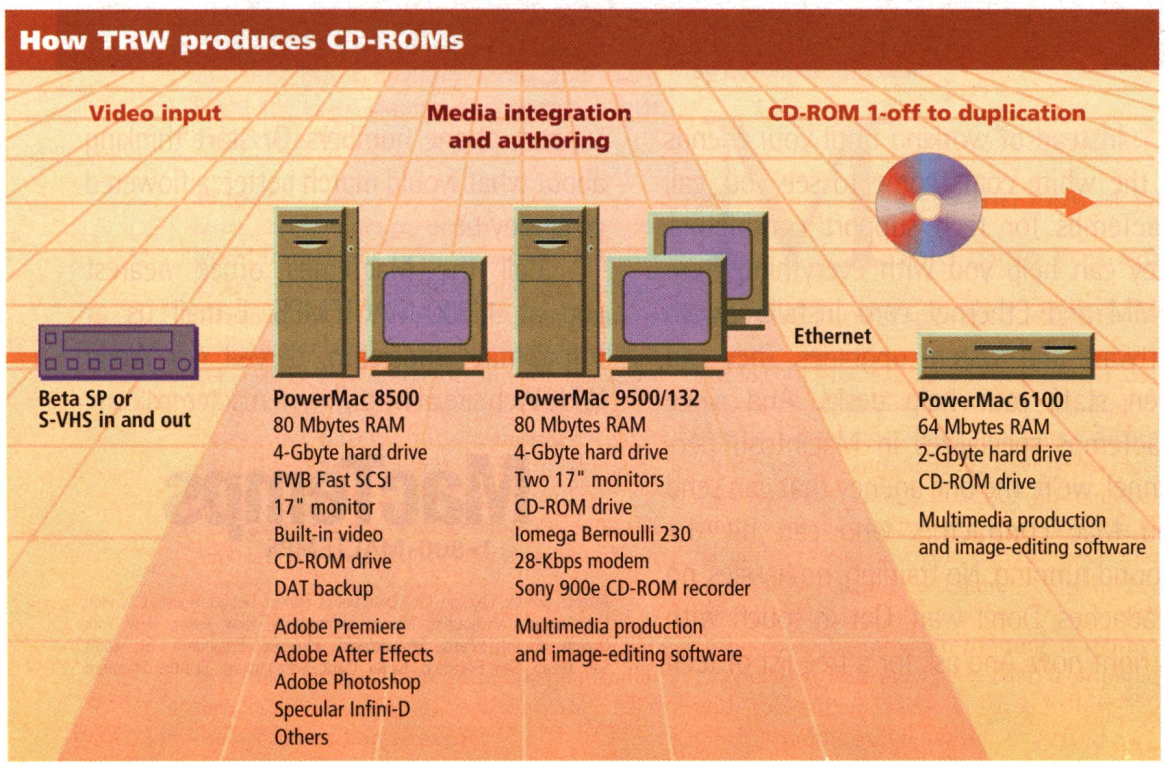
In addition to the Power Mac 8500, Fox has four other Macs and a Windows-based 486 PC at his disposal. The average configuration has 80 Mbytes of RAM and 10 Gbytes of storage.

Fox creates a CD-ROM master from the desktop using a desktop CD-ROM recorder from Sony Corp.; the master is copied at a CD-ROM duplication house and costs TRW about $1 per disc.

Total production cost for each CD-ROM runs $30,000 to $40,000, with an additional $10,000 spent each time the disc is revised and updated. Those numbers may sound high, but Fox is quick to point out that it's not. "You can fit 20 hours of video on a CD-ROM and still produce it for less than a video," he said. "Not only that, but our discs are filled with lots of other information. We're using every byte of space."

Taking it live

Digital video — and talking heads — will continue to play an important communication role at TRW. The company has established an internal Internet system — what Fox calls TRW's "intranet" — and will distribute company information and other news in real time via its own Web pages. Fox said he expects to be placing the same quarter-screen video on the Web pages. □

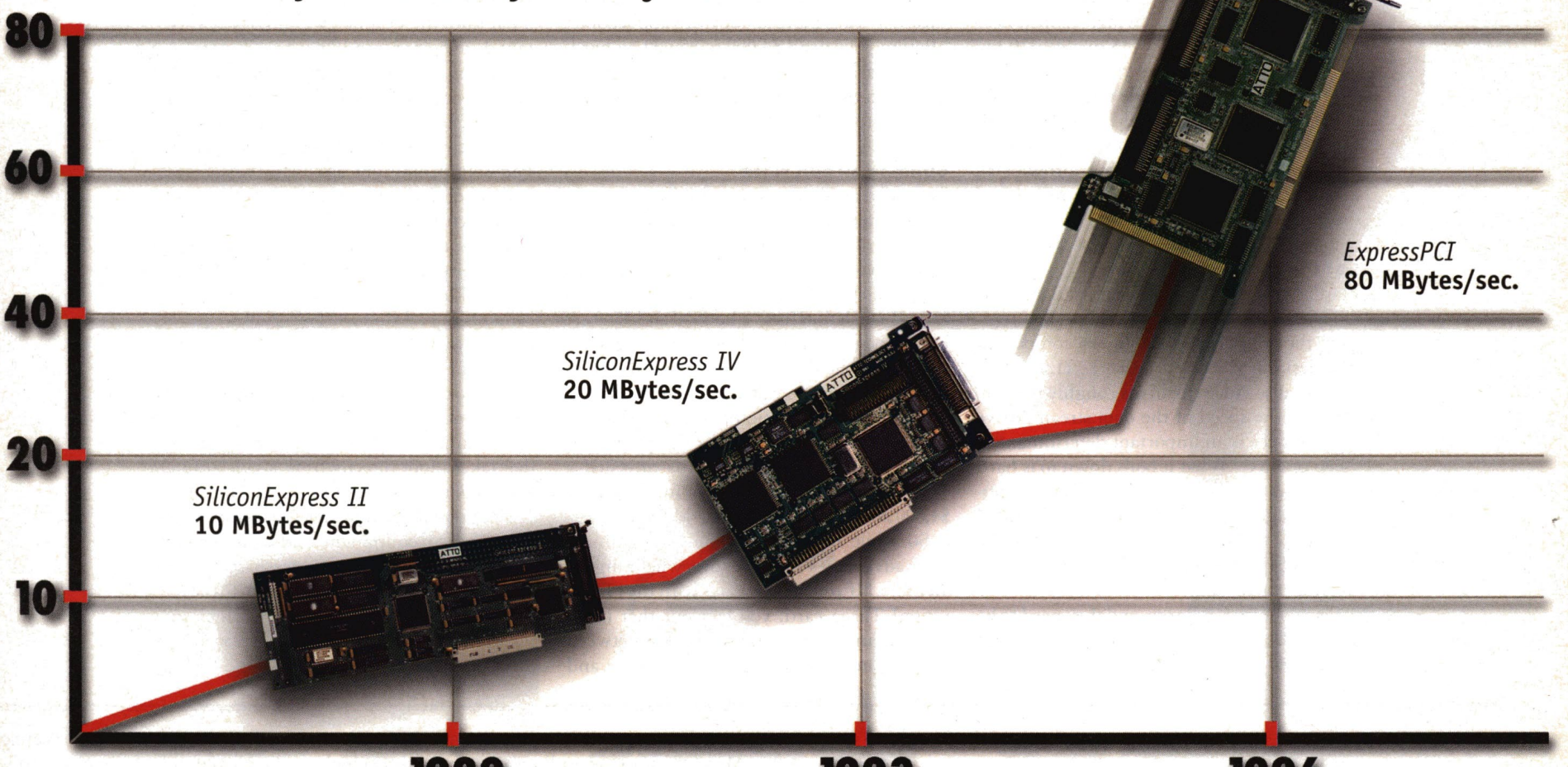


Looking for the *FASTEST* PCI SCSI Performance?

ATTO DELIVERS AGAIN...

ATTO... providing high performance SCSI technology for Macintosh for nearly a decade.

Now Offering the FASTEST UltraSCSI Solution



*ATTO Technology introduced the **FIRST** SCSI-2 Bus Master accelerator board for Macintosh.*

*ATTO launched the **FASTEST**, best selling, SCSI-2 FAST/WIDE NuBus accelerator for Macintosh.*

*ATTO offers the **FASTEST** PCI accelerators for Power Macintosh.*

Macintosh Experts Agree...

MACUSER EDITORS' CHOICE AWARD 1995 WINNER

MacUser selects **ExpressPCI (MC)** as an Editors' Choice Award Winner for Best New Professional Storage Product.

AGAIN

score card MacWEEK ◆◆◆◆

MacWEEK rates **ExpressPCI (MC)** SCSI-3 accelerator as ***Very Good*** overall value.

AND AGAIN

MW EDITORS' CHOICE

SiliconExpress IV wins ***Macworld*** Editors Choice Award for Best SCSI Accelerator Card, July 1995.

ATTO Eliminates Your Storage Bottlenecks

Pick the Macintosh SCSI Leader

ATTO IS SCSI

For details on how to make your Power Macintosh even FASTER, contact us today...

Phone: 716.691.1999

Fax: 716.691.9353

Internet: attotech.com

© 1996 ATTO Technology, Inc. • 40 Hazelwood Drive • Bldg. 106 • Amherst, New York 14228. All rights reserved. "Macintosh", "Power Macintosh" and "Mac" are registered trademarks or trademarks of Apple Computer, Inc. All other brand or product names are trademarks of their respective holders.

8500

From Page 30

on what you're being told or on specs alone."

For many users, the built-in video capabilities of the 8500 are all that's needed.

"I moved up from a [Quadra] 950 and really wanted PCI and a 604, but I didn't need the six expansion slots of the 9500," said Rob Barris, a senior engineer at Quicksilver Software Inc. in Irvine, Calif., and an after-hours video enthusiast. "I'm also using a 4-Gbyte SCSI-2 drive from Micropolis [Corp.], which is fast enough to capture uncompressed video at 30 frames per second."

For Barris, the 8500's hardware interpolation of 320-by-240 video has been good enough for full-screen viewing. "I piped in 25 minutes of slightly sub-VHS quality 320-by-240 component video via the built-in video capture, though I had to use a fast Micropolis drive, not the one that came factory-installed [in the 8500]," Barris said. "I was then able to edit that in Adobe Premiere to produce an aviation video that, while not professional quality, is good amateur."

Get that hard drive working

Hard drive performance is critical because video generates large data streams, and typically, the drive array is the slowest component in a desktop video setup (see 12.11.95, Page 63). Because video quality is roughly proportional to the speed of the data stream, drive performance is an important determinant of video quality. "What it boils down to is hard drive quality: If you go with the internal controller, you can get 6 to 8 Mbytes per second of throughput onto a fast drive, but if you use the external SCSI port, it tops out at 5 Mbytes per second," Barris said.

Drives need to be large, and they need to be tuned. "Using the built-in video capture at 320-by-240 chews up about 5 Mbytes of space per second," Barris said. "It also takes a fair bit of experimentation to find the settings for the best performance — using the component video compressor-decompressor as the capture format is optimal because that is the format the video-capture hardware produces."

Vendors are also upbeat about the machines' built-in video capabilities. "For people who just want to get started, the 8500 has nice entry-level capabilities built in — it's not broadcast quality, but it is a way to begin learning, and for CD-ROM or Internet output, it's just fine," said Joyce Chung, senior product marketing manager for Premiere at Adobe Systems Inc. of Mountain View, Calif.

Taylor suggests using the built-in video as a means to learn more about video applications. "Before you spend $4,000 to $5,000 on hardware upgrades, work with the built-in video and learn the process and see if you have the patience for it," he said.

Building an edit suite

For video professionals, the 8500 looks somewhat different because its native video capabilities are less important than its ability to support video hardware add-ons from companies such as Truevision, Radius Inc. and Data Translation Inc. "The 8500 and 9500 are both good machines. The big stumbling block [for both machines] is the lack of different PCI capture cards available," Chung said.

Currently, Truevision and Data Translation are the leading vendors shipping PCI-based solutions, though Radius unveiled a PCI version of VideoVision for less than $4,000 at this month's Macworld Expo.

So while more PCI options are coming, their advantages aren't yet overwhelming for all users. "If you are working with the [Truevision] Targa card, you can put that in an 840AV, and there is no difference between that and an 8500 in terms of performance, and the 840 is more stable," said Ming Lau, president of Blue Waters Productions of San Francisco. "The PCI thing hasn't really shaken out, and until the system software is clean, PCI is not buying you much."

"If you are just doing cuts and transitions, any NuBus machine is probably good enough," Lau added. "If you are running Adobe After Effects or doing image processing or other special effects, it's good to have the faster chip."

Lau is also more guarded about 30 fps claims. "Nothing does 30 fps on-board; that claim is not realistic," he said.

New in '96

That said, the PCI bus will host two important developments in 1996.

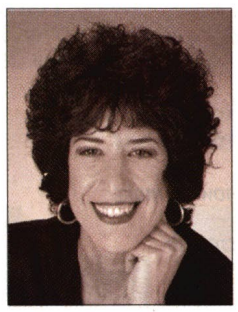
One is the development of faster disk arrays using PCI cards. The other is more intriguing and depends on the success of fully digital cameras from Sony Electronics Inc., Panasonic Communications and Systems Co., and other Japanese manufacturers. Several manufacturers, including Apple and Skipstone Inc. of Austin, Texas, are promising the availability of IEEE 1394 FireWire PCI cards that will be able to accept output from these cameras in real time, allowing direct storage of video to disk.

"With 1394, you've thrown out half the book on how to digitize video," said Tim Byars, an independent video producer in Torrance, Calif. "You can pop a $300 PCI card into your Mac that takes input directly from a video camera and get Beta SP or better production quality."

That could eat into the prices for professional video equipment and will certainly mean new capabilities for Mac-based editing houses. Byars predicts that, "In 1996, the current Beta SP/Targa 2000 studio [which now typically costs $50,000] will be replaced by a $20,000 studio." □

COMMENTARY ANITA MALNIG

Make Mac the video star



While Apple may be taking a lot of heat from the press, stockholders and users about minor technology snafus, low profits and equipment shortages, one technology for which Apple consistently reaps praise is QuickTime.

That couldn't have come across more clearly than it did in this guide. Now in a fairly mature phase, QuickTime has undoubtedly been key in bringing video to the desktop — and not just the Mac desktop. Its cross-platform capabilities make the technology that much stronger, thus making Apple stronger as well.

Corporate users were the ones we concentrated on interviewing in this report. And they were effusive about how QuickTime, and the hardware and software that supports it, is making their jobs — generally some form of inter- or intracompany communication — easier and the work they produce more effective. Not that, necessarily, the corporate training films are of a higher quality than what might have been produced before — but rather that those users were never able to produce them before.

What might have once been a simple print brochure now could be a CD-ROM with interactivity and video clips showing live processes and procedures. In other words, the bar has been raised for what we can expect from an educational medium.

This is not to say QuickTime is the be-all and end-all to video technology. The MPEG compression standard, used on platforms such as Intel-standard PCs and Phillips Consumer Electronics Co.'s CD-I players, offers higher resolution, thus higher-quality video.

Apple's first MPEG product, a $299 LC processor direct slot card for Performa 630-based machines, is supposedly doing well. And a goal of Apple is reportedly to work software MPEG decoding into the Mac OS. And, according to sources, the company is also planning a low-cost dual MPEG playback/video-editing PCI card for delivery this year, in part to jump-start the Mac MPEG market (see MacWEEK, Aug. 7, 1995, Page 1). The point is that Apple cannot rest on its QuickTime laurels. It must keep improving its technology and assume a leadership position in this digital-video arena.

Apple cannot rest on its QuickTime laurels. It must be a leader in this arena.

Because of the relative ease of use of video-editing software such as Adobe Premiere, graphic designers, once solely print-based, are turning to the moving-image medium. (Mind you, desktop video is still not a walk in the park and probably requires far more stick-to-itiveness than desktop print publishing, to which it often is compared.) In fact, for many designers, the forward motion of their careers depends on expanding from print into video.

And what platform are most of these print designers on? Well, we know that answer. So to keep this installed base strong and, I hope, expand it, Apple should concentrate part of its energy on perfecting high-quality digital-video technology that's easy to use. I'm sure there are those working on it — my advice is to work harder and make a lot of noise about it. For not only is Mac-based digital video making tremendous inroads into the corporate area, it's doing so in Hollywood as well. (We'll look at that more closely in the near future.)

In fact, why not keep trying to license the Mac OS to manufacturers that could deliver a machine specialized for the video producer? Radius Inc. made an unsuccessful attempt, but that doesn't mean it's a bad idea. Perhaps work with a company to incorporate MPEG into the Mac OS? Configure the machine with PCI-based video-in and video-out and supply the multigigabyte hard drives that are necessary as well as multiple-monitor support which, by the way, Windows 95 still doesn't do.

Make the Mac the video star. QuickTime started the momentum. Now keep it up. □

Anita Malnig, director/editorial programs, can be reached at anita_malnig@macweek.com.

Connectix

IN THE MID-50'S, THE PHONE COMPANY PROMISED THE ARRIVAL OF THE VIDEO PHONE.

We got tired of waiting.

The result of our mounting impatience is the easy-to-use, extremely affordable Connectix VideoPhone™. A complete camera and software solution that, for under $200, turns your computer into a desktop videoconferencing workstation. Connectix VideoPhone lets you video conference and share a mark-up board. Attend meetings from home. Make office-wide presentations. Or show your ideas to your co-workers down the hall or across the country. Because rather than wait another forty years for the phone company to come up with VideoPhone, we thought we would just do it ourselves.

© 1995 Connectix Corp., 2655 Campus Drive, San Mateo, CA 94403 USA • 800-950-5880 • 415-571-5100 • FAX: 415-571-5195 • For info. via FAX: 800-571-7558 • Web site: http://www.connectix.com • Connectix VideoPhone is a trademark of Connectix Corp • All photographs were taken with a QuickCam. Except the one that wasn't.

in

here

mistakes

a r e

forgiven

©1995 Microsoft Corporation. All rights reserved. For info. only: in the 50 United States and Canada (800)531-6748. Outside the U.S. and Canada, call your local Microsoft subsidiary or (206) 936-8661.
For Microsoft text telephone (TT/TDD) services call (800) 892-5234 in the U.S. or (905) 568-9641 in Canada. Microsoft is a registered trademark and *Where Do You Want To Go Today?* is a trademark of Microsoft Corp. Power Mac is a trademark of Apple Computer, Inc.

YOU HAVE A JOB TO DO

You are on
Your Power Mac.™
You are in
Microsoft® Word 6.0.1.
Your mind
Is racing.
Your fingers
Are racing
To keep up
With your thoughts.

YOU WRITE

You begin
A new
Sentence with
A lowercase letter.
This mistake
Is corrected
Automatically.

YOU REVISE

Knowing there are
100 levels
Of Undo.
And 100 levels
Of Redo.
Just in case.

YOU WRITE

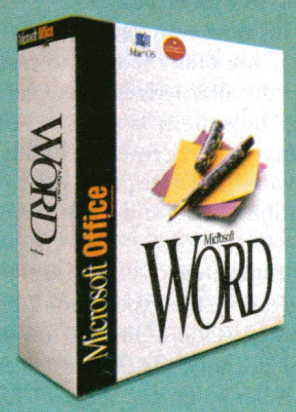
You begin a new
Sentence with
An abbreviation
You created.
It becomes
An entire phrase.
Automatically.

YOU REVISE

In
Print preview
You change
Margins
Words
Typefaces.

YOU WRITE

Until you have finished.
You click AutoFormat.
And the block of words
Can become
A letter.
A proposal.
A story.
Automatically.
You write. Because you can.



Microsoft®
WHERE DO YOU WANT TO GO TODAY?™

New buses, clones, faster processors add to CPU choices

By Henry Norr

Architectural changes to the platform have helped redefine the Mac landscape.

Even by the standards of the fast-moving computer industry, Macintosh hardware has changed dramatically over the past year.

Some of the changes — faster processors, bigger hard disks, snappier graphics and richer multimedia — were simply extensions of trends that have marked the entire history of personal computing. But the past year has also brought some fundamental architectural changes to the Mac platform — for example, the adoption of new expansion buses in the desktop and notebook lines. And the past year's most dramatic development — the arrival of the first Mac clones — was clearly a once-in-a-platform's-lifetime transition.

Taken together, these changes mean more bang for the buck and a wider range of choices for Macintosh buyers than ever before. But with several new variables to consider, the process of selecting the Mac (or, now, Mac-compatible) model that makes the most sense for you is considerably more complicated than it used to be. Gone are the days when picking a Mac meant simply choosing among the three or four options Apple offered. Even a thorough evaluation of your near-term needs isn't an adequate basis for making your choices. Because 1996 Macs (clones included) are far more scalable and expandable than previous models, it pays more than ever to consider tomorrow's requirements as well as today's.

This new complexity can be daunting. But if you take the time to carefully consider the alternatives, the expanding spectrum of options within the Mac family means unprecedented flexibility in matching your hardware purchases to your organization's needs and resources.

The high end

Contrary to the expectations of those who assumed "clones" meant low-cost, mass-market knockoffs, Apple's licensing program has so far borne fruit chiefly at the high end of the desktop market (defined, for the moment, by use of the PowerPC 604 processor). While competition is only now emerging at the low end, Apple's 604-based systems, the Power Macintosh 9500 and 8500, already face strong challenges from Power Computing Corp.'s new PowerWave series and DayStar Digital Inc.'s Genesis MP (see 12.11.95, Page 1).

Each of the three competitors has at least one unique advantage. Apple's Power Mac 9500, with six PCI slots (five after you add a display card), can handle more expansion cards than any competing model (except DayStar's much more expensive system). The Power Mac 8500 has unmatched multimedia capabilities: Out of the box, its built-in video-in and video-out features are more than adequate for many professional needs, including authoring of presentations and computer-based training materials; with the addition of a fast drive array, they deliver broadcast-quality video.

Taking the high ground

DayStar, on the other end, has seized the high ground in the pre-press market with the Genesis MP, the first Mac-compatible system designed from the ground up for multiprocessing. The selection of applications that take advantage of the multiprocessing API DayStar developed with Apple's blessing and assistance is so far limited, but for users of Adobe Photoshop, the new system already offers dramatic performance improvements in many functions. That alone will likely enable many pre-press houses to justify the high price of Genesis systems relative to other Macs.

As for Power Computing, its appeal at the high end rests on two principal pillars: First, it offers the least expensive entrée into the world of PowerPC 604 performance, with PowerWave systems starting at as little as $3,199. Its Stargate custom controller supports NuBus as well as PCI slots, so users can move up to the 604 and PCI without sacrificing their investments in NuBus cards or giving up functions that aren't yet available via PCI products. (For instance, the 601-based Power 100 and 120 and the PowerWave models also feature a bundle of top-notch productivity software, but we doubt this factor will count for much in the high-end market, where the PowerWave systems are targeted.)

GORDON STUDER

As a group, these 604-based systems are not only the fastest Macs ever, but also the most scalable: They offer almost infinite possibilities for adding features and boosting performance. All come with plenty of sockets for extra dynamic RAM, bays for the addition of internal storage devices, multiple PCI slots, dual SCSI buses, 10BASE T as well as AAUI (Apple attachment unit interface) Ethernet ports, and replaceable CPU daughtercards (see chart, Page 40). Unlike Apple, Power Computing and DayStar designers even managed to make these expansion options easily accessible to users.

Some of the options offer immediate benefits, while others are still an investment in future flexibility. Memory and storage capacity obviously fall in the former category. Processor upgrades, on the

See Choices, next page

CASE STUDY

Drug wholesaler changes to Macs, gains space, mobility

By Larry Stevens

Big Blue shop learns a few new tricks after adding Macs to the work force.

When Bergen Brunswig Corp. of Orange, Calif., was planning the purchase of about 4,500 Macintoshes last February, it was faced with supporting a completely new platform. Although the $7.5 billion wholesaler and distributor of pharmaceuticals, cosmetics and toiletries had a few Macs in the research and development department for testing purposes, until recently the Apple logo was an anomaly at the company.

Chosen for its ease of setup and use, the Macs aren't replacing the Intel-standard machines; instead, they are being used to support a new service the company is offering its customers. AccuSource — a hardware and software package created by Bergen Brunswig — provides pricing and other product information to pharmacists in a way that is quintessentially Mac.

"The interface is point-and-click, and the program includes a good deal of multimedia," said Jim McLaughlin, vice president of R&D at Bergen Brunswig.

The company said it plans to purchase an additional 1,000 Macs over the next year. As a result of its recent purchases, the total number of Macs owned by the com-

See Case Study, Page 42

Choices

From previous page

other hand, have not yet materialized, and they probably won't until IBM Corp. and Motorola Inc. deliver new PowerPC chips that offer a larger increment in performance than anything available. (An improved version of the 604, called the 604e, is due in the second quarter of this year.)

In the case of PCI, the new Mac bus has already brought some benefits, in the form of faster and less expensive accelerated display cards, Fast and Wide SCSI interface cards and Fast Ethernet adapters.

Beyond these basic categories, however, the promise of PCI remains mostly a matter of potential. Long-awaited PCI options such as Pentium-based coprocessor cards, H.320-standard videoconferencing cards, and ISDN (Integrated Services Digital Network) and FireWire interfaces have been rumored but have not yet been formally introduced, much less shipped. (One exception to this generalization: Pathlight Technologies Inc. is already shipping PCI cards that provide an interface to the Serial Storage Architecture, an emerging high-performance data-storage standard.)

The only serious shadow over these high-end systems is that, officially at least, they all require Open Transport, Apple's new networking-software architecture. Some early adopters have faced a variety of compatibility problems with this technology, especially in the areas of printing and dial-up Internet access. But many of these glitches have been fixed already, and Open Transport 1.1, which is supposed to resolve remaining problems and boost networking performance, should be available by press time.

Middle of the road

A year ago, if you could find a Power Mac 8100/110 at all, it cost nearly $6,000. Today you can get an equivalent or faster system for about $2,000. In fact, the PowerPC 601 running at 100, 110 or 120 MHz has become the midrange standard for the business-Mac market.

The lowest-cost competitor in this range is currently Radius Inc. If you're willing to gamble that the company will survive its current financial woes, or that its problems won't affect you, you can pick up a Radius 81/110 for as little as $1,499. Power Computing's 601-based alternatives, the Power 100 and Power 120, also start at less than $2,000, although these models are already hard to find and will soon be discontinued.

These clone systems are based on Apple's first-generation Power Mac logic boards. They are derived from NuBus instead of PCI, SIMMs rather than DIMMs (dual in-line memory modules), slower SCSI, a CPU that cannot be upgraded, no built-in 10BASE T and no need for Open Transport. For future-oriented buyers, those might be significant drawbacks; to those trying to preserve investments in NuBus cards and 72-pin SIMMs, or unwilling to risk Open Transport-related hassles, relying on last year's technology may be a plus.

Apple's current midrange business system, the Power Mac 7500, costs considerably more than its 601-based clone competitors, even though its processor, at 100 MHz, runs more slowly. The price/performance gap looks even larger when you consider that the 7500 ships without a keyboard or a Level 2 cache — a bank of fast memory you need in order to take full advantage of the PowerPC — while the Radius and Power systems have keyboards and 256-Kbyte caches as standard equipment.

On the other hand, there's much to justify the 7500's premium price. It has PCI rather than NuBus slots, its CPU will be able to be upgraded with a replacement daughtercard, and it offers faster graphics and disk I/O than the older models. Its elegant industrial design makes it easier to expand and service than its competitors, especially the Radius 81/110. In addition, the 7500 is the only system in this range that has video-digitizing capabilities built-in; even if you're not planning to use the machine for multimedia authoring, this feature might prove useful if you hope to implement videoconferencing in the next few years.

> The promise of PCI remains mostly a matter of potential. PCI options have been rumored but not yet formally introduced, much less shipped.

The latest and most exciting development in the midrange category is Power Computing's new PowerCurve because it promises to bring much of the 7500's new technology down to a price point of about $2,000. Slated to begin shipping this month, the PowerCurve has three PCI slots, and its CPU — currently a 120-MHz 601 — comes on a daughtercard that can be replaced with any CPU card that works in the Apple systems. What it's missing, compared with the 7500, is a second SCSI bus and video-in capabilities, but Power Computing plans to offer a new video-capture card and TV tuner from Diamond Multimedia Systems Inc. as an option at less than $200.

Entry level

Until this month Apple had the low end of the PowerPC market to itself (if you don't count the heavily discounted Radius 81/110 in this category). Out of the box, the Power Macintosh 7200/75 and 7200/90 are undistinguished by current performance standards; despite higher clock speeds, their benchmark scores aren't much better than those of the Power Mac 7100/66, which is roughly similar to the Power Mac 6100/60, which debuted almost two years ago. The 7200 models don't have their CPUs on daughtercards either, so if an upgrade is ever offered, it will have to be via a relatively expensive logic-board replacement.

On the other hand, the 7200s are particularly inexpensive since Apple cut their prices last month to boost sagging holiday sales. With the addition of a Level 2 cache — about $250 for 256 Kbytes — their performance can be boosted to more respectable levels. And they offer the same three PCI slots, 10BASE T and AAUI connectors, and user-friendly industrial design as the Power Mac 7500.

If you're in the market for a complete entry-level system and you don't care about PCI, Apple's Performa 6300 bundles are worth considering. Their typical retail prices are higher than the 7200 models', or even the PowerCurve, but those prices include 15-inch monitors, keyboards and modems; while most of the software also included is clearly intended for the home market, packages such as ClarisWorks and MacLinkPlus can be put to good use in the business environment, too. And with PowerPC 603e processors running at 100 MHz, combined with built-in 256-Kbyte Level 2 caches, these Performas actually outperform the 601-based 7200 systems.

If even Apple's 7200 models and the first-generation clones are too much for your budget, you are not necessarily out of options. In addition to the used market, mail-order houses such as MacWarehouse and MacMall offer new and refurbished 68040-based Macs at remarkably low prices: Complete Performa 63x systems, for example, are sometimes available for less than $1,100, while Quadra 605s occasionally appear for less than $500.

Such systems are clearly yesterday's technology — they'll probably never run Copland, for example — and you may need to add RAM and perhaps more disk capacity to work with current applications.

But for users who do only light word processing, spreadsheet or communications tasks, these older machines offer perfectly adequate performance — especially if the alternative is sticking to even older equipment. □

On the mobile front

Since September, Apple has completely turned over its PowerBook line, and the results have been controversial. Most of the debate has focused on the new PowerPC 603e-based 5300 series. Critics have pointed to a variety of software glitches, such as mediocre performance in 680x0 emulation mode (unless Connectix Corp.'s Speed Doubler is installed). It has also been criticized for uninspired industrial design, the absence of a CD-ROM option and the elimination of built-in Ethernet, a feature of the preceding PowerBook 520/540 generation.

On the good side

On the other hand, some users have responded with enthusiasm to the new notebooks, pointing to such features as bigger, brighter screens; infrared connectivity; and excellent performance with native PowerPC applications.

One point both sides agree on: The new PowerBooks, like their desktop counterparts, offer an unprecedented degree of customizability. For one, a new expansion bay (available when the floppy drive is removed) provides space for third-party hard drives, optical drives, power adapters and other accessories, while two PC Card slots let users choose among a variety of industry-standard communications and network adapters, as well as a growing list of specialized products such as data-acquisition cards.

While debate rages over the 5300 series, Apple's other new PowerBooks haven't received much attention. The Duo 2300c, which didn't reach the market in quantity until this month, combines PowerPC 603e performance, a larger active-matrix screen, and an improved trackpad with the slim lines and light weight of previous Duos; the downside is that it offers none of the other innovations of the 5300 models, such as infrared or PC Card support. (As with other Duos, you'll also need to add other hardware, such as a dock, minidock, or floppy adapter and drive if you want the connectivity and storage options that are standard on other Macs.)

Sleep mode

The PowerBook 190 just might prove the sleeper in the new litter. It offers performance comparable to that of the 500 series but at much lower prices (as little as $1,849 for an 8/500 configuration; even less for anyone who can work with only 4 Mbytes of RAM) and with the extra flexibility that two PC Card slots and a removable floppy provide.

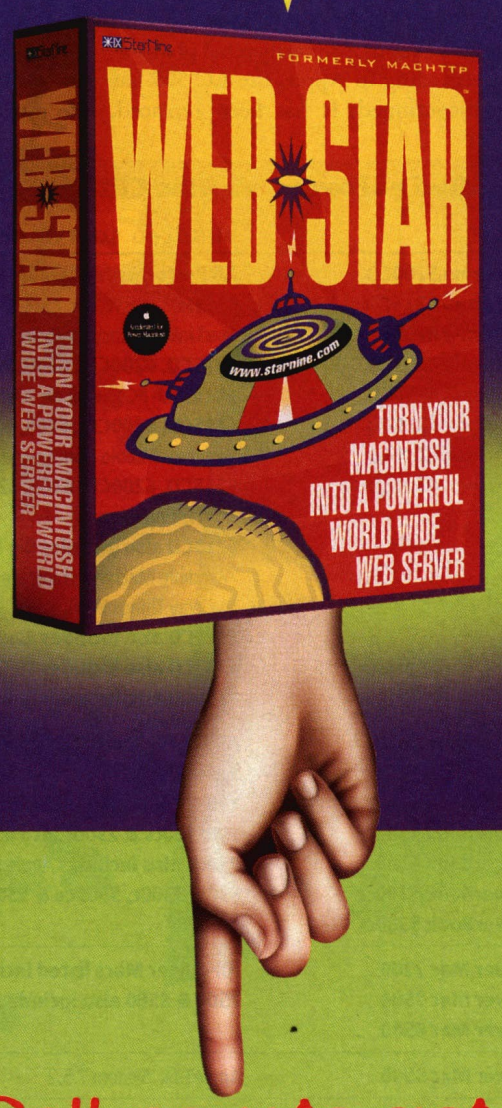
The 190 has particular appeal for those whose feature wish lists far outrun their current means, because it is the most upgradable system Apple has ever offered. You'll be able to add all the features of the 5300 line, including a PowerPC logic board, 10.4-inch active-matrix color display, video-out support, infrared connectivity and (someday) lithium-ion batteries. — By Henry Norr

Macintosh CPUs

COMPANY	PRODUCT*	BASE PRICE	SLOTS	TYPE OF PROCESSOR	RAM (STANDARD/ MAXIMUM)	HARD DISK SIZE	BUILT-IN ETHERNET	BUNDLED ITEMS	OPTIONAL ITEMS
APPLE Cupertino, Calif. (408) 996-1010 or (800) 776-2333	**Performa 5200 series**	$1,899-$2,049	LC PDS, comm., video	PPC 603 75 MHz	8 Mbytes/ 64 Mbytes	800 Mbytes or 1 Gbyte	n/a	Cache (5200CD), 4x CD-ROM drive, keyboard, 14.4- Kbps modem, 15-inch monitor	n/a
	Performa 6200 series	$1,999-$2,799	LC PDS, comm., video	PPC 603 75 MHz	8 Mbytes/ 64 Mbytes	1 Gbyte	n/a	Cache (6205, 6218CD, 6220CD, 6230CD), 4x CD-ROM drive, keyboard, 14.4- or 28.8-Kbps modem,15-inch monitor	n/a
	Performa 6300CD	$2,799-$2,899	LC PDS, comm., video	PPC 603e, 100 MHz	16 Mbytes/ 64 Mbytes	1.2 Gbytes	n/a	Cache, 4x CD-ROM drive, keyboard, 28.8-Kbps modem, 15-inch monitor	n/a
	PowerBook 190 series	$1,649-$2,299	2 PC Card	Motorola 68LC040, 66/33 MHz	4 or 8 Mbytes/ 40 Mbytes	500 Mbytes	PC Card slot	Keyboard, 9.5 or 10.4-inch monitor	Modem, removable media drive
	PowerBook Duo 2300c	$3,499-$4,699	n/a	PPC 603e, 100 MHz	8 or 20 Mbytes/ 56 Mbytes	750 Mbytes or 1.1 Gbytes	n/a	Keyboard, 14.4-Kbps modem (on 20/1.1), 9.5-inch monitor	Modem (on 8/750)
	PowerBook 5300 series	$2,099 $6,699	2 PC Card	PPC 603e, 100 or 117 MHz	8, 16, 32 Mbytes/ 64 Mbytes	500 Mbytes-1.1 Gbytes	PC Card slot	Keyboard, 9.5 or 10.4-inch monitor	Modem, removable media drive
	Power Mac 7200 series	$1,549-$1,699	3 PCI	PPC 601, 75 or 90 MHz	8 Mbytes/ 256 Mbytes	500 Mbytes	Apple AUI, 10BASE T	32-Kbyte cache, 4x CD-ROM drive	Keyboard, modem, monitor
	Power Mac 7500	$2,699	3 PCI	PPC 601, 100 MHz	16 Mbytes/ 512 Mbytes	500 Mbytes	Apple AUI, 10BASE T	32-Kbyte cache, 4x CD-ROM drive	Keyboard, modem, monitor
	Power Mac 8500	$3,999	3 PCI	PPC 604, 120 MHz	16 Mbytes/ 512 Mbytes	1 Gbyte	Apple AUI, 10BASE T	Cache, 4x CD-ROM drive	Keyboard, modem, monitor
	Power Mac 9500	$4,599	6 PCI	PPC 604, 120 or132 MHz	16 Mbytes/ 768 Mbytes	1 Gbyte	Apple AUI, 10BASE T	Cache, 4x CD-ROM drive	Keyboard, modem, monitor
DAYSTAR DIGITAL INC. Flowery Branch, Ga. (770) 967-2077 or (800) 962-2077; fax (770) 967-3018; info@daystar.com	**Genesis MP**	$14,999	6 PCI	4 PPC 604, 132 MHz	16 Mbytes/ 15 Gbytes	1 Gbyte	Apple AUI, 10BASE T	Cache, 4x CD-ROM drive, keyboard	n/a
POWER COMPUTING CORP. Austin, Texas (512) 258-1350 or (800) 999-7279; fax (512) 250-2618; info@powercc.com	**Power 100**	$1,699	3 NuBus	PPC 601, 100 MHz	8 Mbytes/ 200 Mbytes	840 Mbytes	Apple AUI	256-Kbyte cache, keyboard	4x CD-ROM drive ($330), 14-20-inch monitors ($299-$1,999), removable media drive ($159)
	Power 120	$1,799	3 NuBus	PPC 601, 120 MHz	8 Mbytes/ 200 Mbytes	840 Mbytes	Apple AUI	256-Kbyte cache, keyboard	4x CD-ROM drive ($330), 14-20-inch monitors ($299-$1,999), removable media drive ($159)
	PowerCurve 601/120	$1,669-$1,999	3 PCI	PPC 601, 120 MHz	8 Mbytes/ 256 Mbytes	840 Mbytes	Apple AUI, 10BASE T	Keyboard	256-512-Kbyte cache ($234-$339), 4x CD-ROM drive ($330), 14-20-inch monitors ($299-$1,999), Imagine, Number Nine or ATI PCI video cards, removable media drive ($159)
	PowerWave 604/120	$3,199	3 PCI	PPC 604, 120 MHz	16 Mbytes/ 512 Mbytes	1 Gbyte	Apple AUI, 10BASE T	4x CD-ROM drive, keyboard, XClaim GA card	256-512-Kbyte cache ($234-$339), 14-20-inch monitors ($299-$1,999), removable media drive ($159), 2 NuBus slots ($249), Number Nine or IMS PCI video cards
	PowerWave 604/132	$3,699	3 PCI	PPC 604, 132 MHz	16 Mbytes/ 512 Mbytes	1 Gbyte	Apple AUI, 10BASE T	256-Kbyte cache, 4x CD-ROM drive, keyboard, XClaim GA card	14-20-inch monitors ($299-$1,999), removable media drive ($159), 2 NuBus slots ($249), Number Nine or IMS PCI video cards
	PowerWave 604/150	$4,499	3 PCI	PPC 604, 150 MHz	16 Mbytes/ 512 Mbytes	1 Gbyte	Apple AUI, 10BASE T	512-Kbyte cache, 4x CD-ROM drive, keyboard, XClaim GA card	14-20-inch monitors ($299-$1,999), removable media drive ($159), 2 NuBus slots ($249), Number Nine or IMS PCI video cards
RADIUS INC. Sunnyvale, Calif. (408) 541-6100 or (800) 227-2795; fax (408) 541-6150; radius.tech@applelink.apple.com; http://www.radius.com	**Radius 81/110**	$1,699-$2,199	3 NuBus 90, 1 PPC Direct	PPC 601, 110 MHz	8 or 16 Mbytes/ 256 Mbytes	730 Mbytes or 2 Gbytes	Apple AUI	256-Kbyte cache, 4x CD-ROM drive, keyboard	Monitor
	System 100	$7,200	1 NuBus, 1 PPC Direct	PPC 601, 110 MHz	72 Mbytes/ 256 Mbytes	540 Mbytes, 2 Gbyte Fast & Wide SCSI-2	Apple AUI	256-Kbyte cache, 4x CD-ROM drive, keyboard, FWB SCSI II JackHammer Accelerator, Radius Thunder IV GX-1600	Monitor

**All products have a one-year warranty. Contact company for more information.*

Make Web Sites That Blow Your Mind, Without Exploding Your Brain


FORMERLY MACHTTP
WEB STAR
TURN YOUR MACINTOSH INTO A POWERFUL WORLD WIDE WEB SERVER
www.starnine.com
WEB STAR
TURN YOUR MACINTOSH INTO A POWERFUL WORLD WIDE WEB SERVER

WebSTAR® Makes Powerful Web Publishing Easy.

You're ready to build your own Web site, but you're wracking your brains. Don't despair. With WebSTAR, from StarNine®, you can quickly make mind-blowing Web sites on the Internet or on your internal network. All it takes is WebSTAR, your Mac, and a double-click.

WebSTAR's power and flexibility will instantly turn your files into a URL on the Web. Whether it's graphics, sounds, Web pages, animations, QuickTime™ movies, or even your database, the PowerPC® native server publishes your files to any Web browser. If you're worried about security, WebSTAR password protects files and the optional SSL Security Toolkit encrypts pages. All this power on your desktop without the hassle of UNIX®.

With WebSTAR, you also get a ton of free stuff... including the StarNine Internet Publisher CD, HTML editors, sample home pages, FTP and gopher servers, a trial version of ListSTAR™ (our cool listserver), plus a bunch of third-party demos.

Net novices and Web masters alike are already creating mind-blowing Web sites on the Mac, so what are you waiting for? Blow your mind with WebSTAR.

DOWNLOAD

EVALUATION COPIES OF

WEBSTAR AND

LISTSTAR!

http://www.starnine.com/macweek/

Call now to get WebSTAR for only $499!

1-800-525-2580 or 510-649-4949
Available in MacWarehouse or MacZone.
Email: sales@starnine.com
Or surf your way to
http://www.starnine.com/macweek/

©1995 StarNine Technologies, A Quarterdeck® Company
ALL TRADEMARKS ARE PROPERTIES OF THEIR RESPECTIVE OWNERS.

Case study

From Page 38

pany now exceeds Intel-standard PCs by a ratio of about 8-to-1.

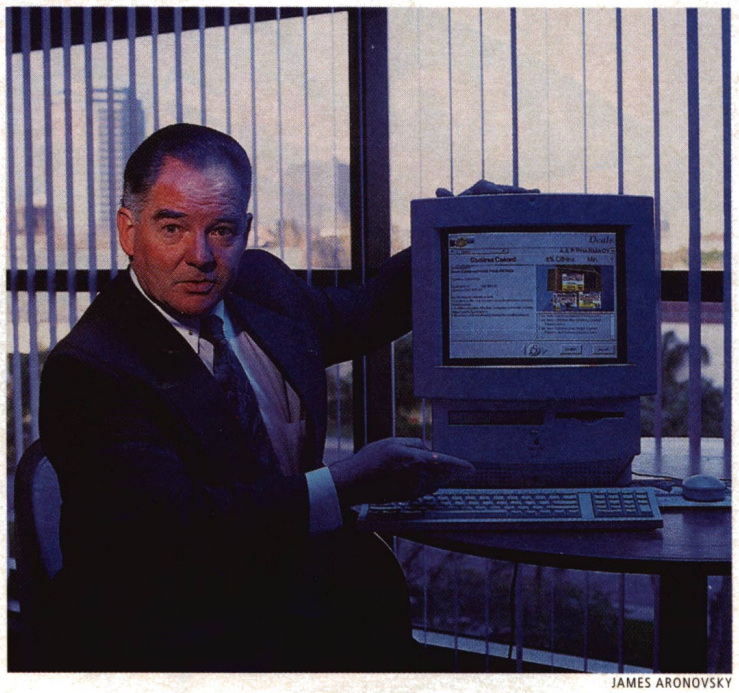
AccuSource is an alternative to the microfiche price list. Updated twice a month through CD-ROMs, AccuSource includes product and pricing information, drug interaction data, and listings of generic equivalents. It allows pharmacists to transmit orders electronically with the click of a button. And it is replete with ads and special offers depicted in color graphics, QuickTime movies, music, voice-overs and screen savers. It even captures keystrokes, allowing the company to tell advertisers how many "hits" their ads received.

About 4,000 of the Macs the company purchased are LC 575s, which are at customer locations, primarily retail pharmacies. (According to Apple, the LC 575 has been discontinued. It has been replaced, however, with the LC 580.) Bergen Brunswig owns the Macs and supplies them to customers pre-loaded with AccuSource, which opens on start-up. Bergen Brunswig employees use the other 500 or so new Macs primarily to support AccuSource.

> McLaughlin chose the LC 575 because its all-in-one box design makes it easier to set up and move around.

McLaughlin chose the LC 575 because its all-in-one-box design makes it easier to set up and move around. "All the pharmacist has to do is plug in the AC cord and the phone line," McLaughlin said. "No matter how uncomfortable they may be with computers, they can all do that." As a result of the easy setup, the company gets few calls for support.

Another advantage of the LC 575's design is its portability and small footprint. Pharmacists' work areas are sometimes crowded, and the computer often has to be relocated, sometimes even stored temporarily on the floor use the counter to separate a new shipment of products. "It's a lot easier to move a computer around when you're not worried about balancing the monitor on top of the CPU," McLaughlin said.



JAMES ARONOVSKY

According to Jim McLaughlin, the advantage of purchasing Macs for the AccuSource project included ease of setup and use, a small footprint, and the LC 575's ability to run multimedia applications.

All-in-one box

Another reason for choosing the LC 575 is that it has the power and functionality to run multimedia applications without having to buy and connect add-ons. The computer's 33-MHz 68040 CPU is fast enough for QuickTime playback, and its 16-bit-color capability allows it to display snazzy graphics. It has a built-in CD-ROM player, modem, 14-inch color monitor, stereo speakers and a hard drive of at least 160 Mbytes.

"The other options we considered at the time required things like SoundBlaster cards, SCSI drive for CD-ROM and external speakers. Invariably there would be problems with those things working together properly," McLaughlin said.

The largest number of Macs the company purchased besides the LCs are 350 PowerBook Duo 280c machines. These are used by salespeople and run the same AccuSource application that the pharmacists have on their machines.

McLaughlin chose the PowerBook for two reasons. First, its color active-matrix LCD screen, 640 by 480 pixels, allows it to display AccuSource graphics and multimedia with close to the same quality as you might get on the LC's flat screen. Secondly, its light weight (4.8 pounds) is easy on sales people.

"A few pounds difference may not seem like much on a spec sheet," McLaughlin said, "but our people say when you're carrying something around all day, the difference between 7 and 5 pounds can be significant."

The multimedia and graphics features of AccuSource are developed on a total of 10 Power Macs, about half 8500 series and half 9500 series. These are used for tasks such as video editing and creating original art. For example, sometimes advertisers send film clips or animated logos, which the media department cleans up and prepares for insertion into AccuSource.

"The 9500 and 8500s are for the applications where we need the most power," McLaughlin said.

The more textural aspects of AccuSource, for example pricing information, are configured using 10 PowerBook 5300/100 machines. The 100-MHz PowerPC 603e processors provide enough power to handle large amounts of data quickly. And since the PowerBooks aren't used for graphics, their passive-matrix gray-scale display isn't a problem. □

Bundled software on Mac CPUs

MODEL	BUNDLED SOFTWARE
Performa 5200CD **Performa 5215CD** **Performa 6200CD** **Performa 6205CD** **Performa 6218CD** **Performa 6220CD** **Performa 6230CD** **Performa 6300CD**	**All Performa models listed include** 1995 Grolier Multimedia Encyclopedia, 3D Atlas, American Heritage Dictionary, At Ease, ClarisWorks, Click Art Performa Collection, eWorld with Internet Access, Mac Gallery Clip Art Treasury Pak, MacLinkPlus/Easy Open Translators, Quicken, System 7.5 **5215CD, 6200CD , 6205, 6218CD, 6220CD, 6230CD & 6300CD also include** Club KidSoftCD, The Family Doctor, Macintosh PC Exchange, Mangia, Power Pete, QuickTime, Smithsonian's America, WealthBuilder, Virex **5215CD, 6200CD , 6205, 6218CD, 6220CD & 6230CD also include** EPIE's Guide to Mac Home Learning, Fine Artist, Professor Piccolo from Opcode, Thinkin' Things Collection 2, Widget Workshop **5215CD, 6200CD, 6205, 6218CD, 6230CD & 6300CD also include** Expresso, My First Incredible, Amazing Dictionary, The Writing Center **6218CD also includes** Big Top Cartoon Toolbox, CardShop Plus/StickerShop Plus, Earth Explorer, The Even More! Incredible Machine, Hometime: Weekend Home Projects, Sharks!, Time Almanac Reference Edition, Trivial Pursuit, The Way Things Work **6220CD also includes** Avid VideoShop, Personal Assist **6230CD also includes** 1995 Time Almanac MPEG CD, Ocean Life: Hawaiian Islands **6300CD also includes** Lode Runner, Making Music by Voyager, Sesame Street Numbers, Time Almanac Reference Edition
PowerBook 190 **PowerBook 190cs** **PowerBook Duo 2300c** **PowerBook 5300** **PowerBook 5300c** **PowerBook 5300ce** **PowerBook 5300cs**	**All PowerBooks listed include** Eric's Solitaire Sampler, PowerBook Mobility Bundle, Spin Doctor, Super Maze Wars, System 7.5.2 **190 & 190cs also include** ClarisWorks **190, 190cs & 2300c also include** eWorld **2300c also includes** Apple Remote Access, PowerTalk **5300, 5300c, 5300ce & 5300cs also include** QuickTime
Power Mac 7200 **Power Mac 7500** **Power Mac 8500**	**All Power Macs listed include** AppleTalk, eWorld, GeoPort Fax, GeoPort Telephony, MegaPhone, System 7.5.2 **7500 & 8500 also include** Apple Media Conference, PlainTalk 1.4 QuickDraw 3D
Power Mac 9500	AppleTalk, System 7.5.2
DayStar Genesis MP	Adobe Multiprocessing Extension for Photoshop, After Effects, DayStar Genesis MP System Utilities, nPower Multiprocessing Extension for KCMS, System 7.5.2
PCC Power 100 **PCC Power 120** **PCC PowerWave 604/120** **PCC PowerWave 604/132** **PCC PowerWave 604/150** **PCC PowerCurve 601/120**	**All Power machines listed include** Claris Works 4.0, FWB CD-ROM ToolKit, FWB Hard Disk ToolKit PE, Launch, Now Contact 3.5, Now Up-To-Date 3.5, Now Utilities 5.0.1, Quicken 5.0 **Power 100 & 120 also include** System 7.5.1 **PowerWave 604/120, 604/132, 604/150 & PowerCurve 601/120 also include** The Animals! 2.0, Grolier's Multimedia Encyclopedia,Nisus Writer 4.1, SoftWindows 2.0*, System 7.5.2, U.S. Atlas 5.0, World Atlas 5.0
Radius 81/110 **Radius System 100**	**Radius 81/110 & System 100 include** FWB CD-ROM ToolKit, FWB Hard Disk ToolKit, PowerTalk, QuickDraw GX, System 7.5.1 **System 100 also includes** Adobe Photoshop 3.0.3

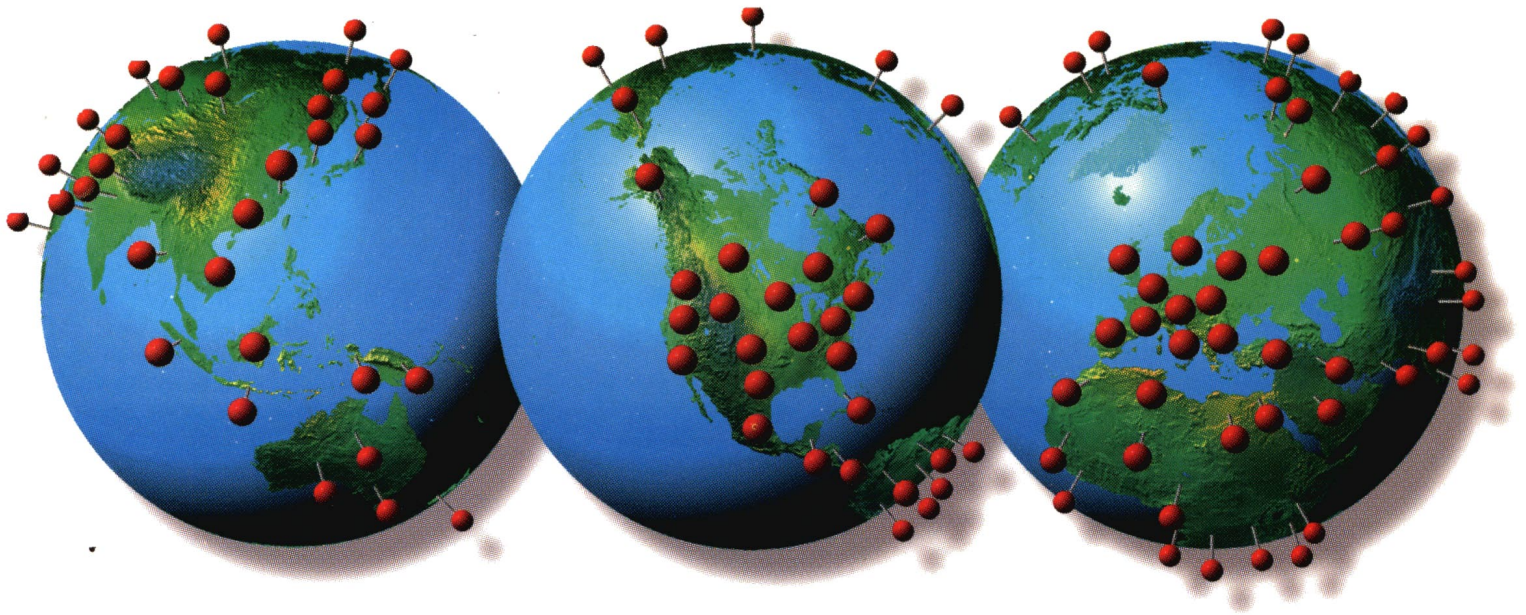
** 60-day trial version.*

Lotus®

Special Advertising Supplement

The SOURCE for LOTUS Business Solutions

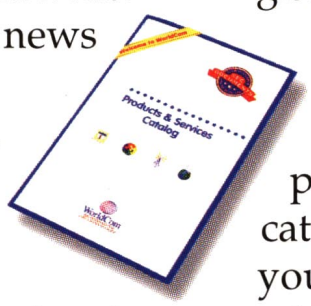
Directory of Lotus Integrated Products & Services



WORLDCOM CONNECTS YOUR LOTUS NOTES USERS TO EACH OTHER AND TO THE WORLD.

A simple connection to WorldCom and your Notes network will never be the same.

Immediate access to the Internet and e-mail systems worldwide. Notes based news services and publications. Technical support forums. Financial, legal and government information.



With local access points in more than 100 countries, WorldCom will connect your remote users, branch offices and clients across the nation and around the globe.

Suddenly, your Notes network is a powerful communications tool that keeps your users in touch with each other and the world—and ahead of the competition.

Rapid connections. Reduced costs. Complete project management.

The best customer service in the industry.

Let WorldCom manage your Notes communications so that you can manage your business.

WorldCom
THE INTERNATIONAL NETWORK FOR LOTUS NOTES

1-800-774-2220

+713-650-6522

INFO@WORLDCOM.COM or http://www.worldcom.com

PLEASE CALL FOR OUR FREE PRODUCTS & SERVICES CATALOG

Lotus Notes is a registered trademark of the Lotus Development Corporation.
WorldCom is a registered trademark of Wolf Communications Company.

THE SOURCE

Lotus Development Corp. and Ziff-Davis Interactive present *The Lotus Source for Business Solutions* on-line!

THE WORLD WIDE WEB

See *The Source* and learn about the services our advertisers have to offer by visiting us on the Web at http://www.zdnet.com.

LOTUSPHERE 96

Or see us live at various info kiosks at Lotusphere January 20-23, 1996.

JANUARY 20-23

Table of Contents

A Word On Lotus Notes 4

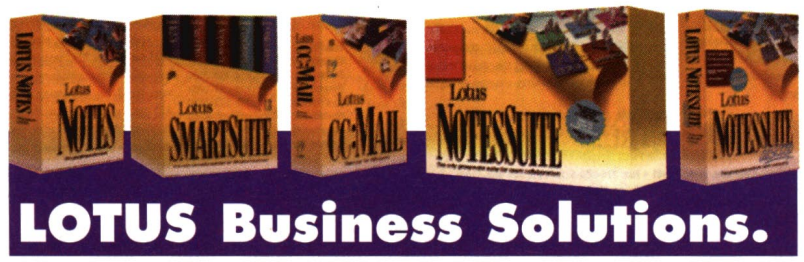
What's New in Notes R4? 6

Lotus Notes and the World Wide Web . . 18

Case Studies

- State of Missouri & WORDLINK. . . . 11
- PerSeptive Biosystems Inc. & Cambridge Software Group Inc. . . . 14
- Merck & Co. & SandPoint Company. . 15
- Collegiate Health Care & NetImage . . 22

Lotus®



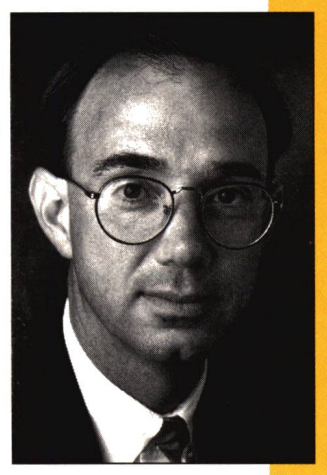
The Source for Business Productivity

Welcome to *The Source for Lotus Business Solutions*. This directory showcases some of the top providers of business solutions developed using Lotus technologies. It also contains valuable articles that explain the enhanced application development environment of Lotus Notes Release 4, and show how Notes can be used to link mission critical workflow applications to the Internet.

With over 11.5 million users, Lotus is by far the leading provider of software for building integrated messaging and groupware solutions. Solutions built with Lotus Notes, cc:Mail and SmartSuite help people get their jobs done faster and better and enable teams of people to work together more productively than ever before. Using their power to dissolve organizational and geographical boundaries, Lotus Notes, SmartSuite and cc:Mail products make it possible to run an efficient, distributed organization with satellite offices and mobile personnel all working with the same critical information.

Lotus' growing community of over 12,000 Business Partners are helping customers achieve tremendous productivity gains by using Lotus' award-winning products as the foundation for building a wide variety of applications and solutions for industries as diverse as health care, legal, pharmaceutical, insurance, manufacturing, retail, petrochemical, publishing and financial services. And now with Lotus Notes Release 4, Lotus Business Partners are helping customers get the most out of their Web browsers by allowing them to fully participate in Notes business process applications.

As you peruse this directory, please note that it contains a cross section of Business Partners, including application developers, consultants, service providers, education centers, system and network integrators, support centers and resellers. Right now they are designing, customizing, implementing and supporting Lotus groupware-based business solutions for companies just like yours — solutions that can deliver an unprecedented return on your technology investment and make your organization more productive than ever before.



Don Bulens
Vice President, Business Partner Programs
Lotus Development Corporation

A Word on Lotus Notes

Lotus Notes is the industry-leading integrated messaging and groupware product. Ironically, there is little agreement among industry analysts, customers, business partners and competitors regarding what Notes really is. It has alternately been described as a client/server platform for developing and deploying groupware applications, a platform for highly-specialized applications, and an open environment on which independent software developers can integrate their own products.

Notes is a product that has many faces. Most people think of Notes as the applications they see and run in the Notes environment — mail, discussion databases, etc. The power of Notes is that these applications are merely specific instances of a broad range of applications that can be written in Notes.

For example, there is no real "Notes conferencing system," rather, there are many instances of conferencing systems that can be written in Notes — because Notes is, at its core, an applications development environment. Oftentimes, someone will take an existing conferencing application and customize it, adding fields to the forms so that structure can be added for a specific purpose (e.g. when information is added about a customer inquiry, fields that state the details of the inquiry are filled in, the level of urgency is noted, etc.). Once this is done, a new conferencing application exists that is tailored to a specific type of collaboration.

These applications all take advantage of Notes' underlying platform-level services, such as messaging, object store, replication, security, and applications development. The Notes technology serves as a flexible groupware platform or framework upon which groupware applications can be built and deployed.

From its inception, Lotus Notes has combined three powerful group support technologies — messaging, distributed object store, and a rich applications development environment — to form a component architecture that serves as the basis for a large variety of groupware applications. It has been unique among groupware systems in putting forward a database model for groupware — both in terms of the underlying user metaphor and the design tools available to end-users and IT organizations. It supports end-user tailoring tools to make simple changes to data structures and database views. It also supports a rich set of APIs for developers who wish to build alternative UIs that also leverage the database model.

The implementation of the distributed database technology is also a unique advance — still far ahead of any other groupware product. Lotus Notes' robust replication over occasionally connected networks made deployment possible at a time when few organizations had achieved full network connectivity across their enterprise. It also anticipated the growing need for true disconnected use on workstations and notebook computers.

An entire industry of independent software vendors, systems integrators, application developers and consultants has evolved around Notes. Lotus continues to cultivate this community to help ensure that customers have the resources available to install, develop, deploy and manage Notes-based applications. Lotus

Take full advantage of the Power of Notes R4!

Create and add Workflow-enabled forms, views and agents to Notes databases @ the click of a button.
No programming necessary!
No server engine • No mail requirements

Business Builder V4

Reach out to your customers. Don't wait for them to call.
Immediately implement the ultimate Customer Satisfaction system for your customers.

Business Bureau

QDM

Call QDM Today for an Evaluation Copy
1-508-688-8266

Get the Best Business News Where You Live: Groupware, E-mail, Windows™ or the Mac™

Tap Into the Dow Jones enterprise-wide clipping services and know what's going on with your client's business...industry developments...or the competition...before you step into that next meeting.

DowVision® delivers a constant stream of general business news, including full-text access to *The Wall Street Journal*,® *The New York Times* News Service, top national and international newspapers, and newswires.

DOW JONES

TOTAL ENTERPRISE SOLUTIONS

1-800-507-8369 ext 4109

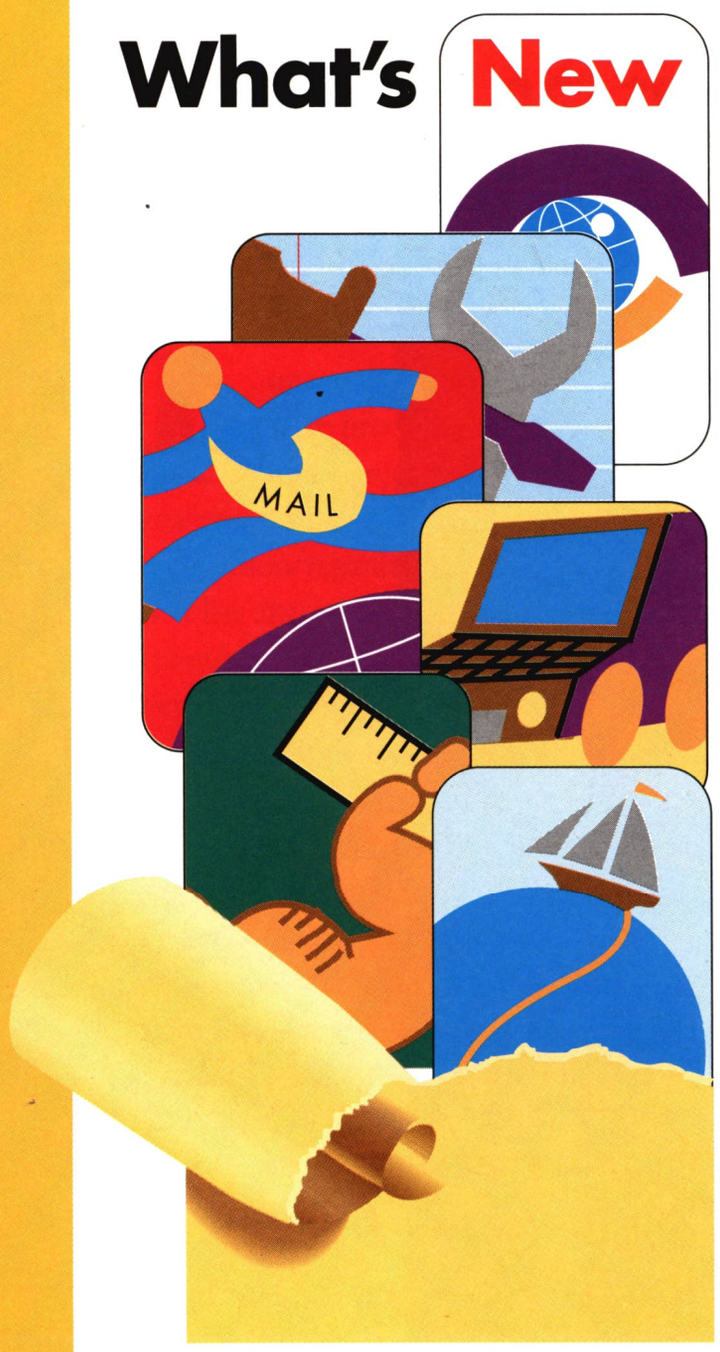
http://bis.dowjones.com

CustomClips® automatically scans thousands of industry publications and clips the specific topics that interest you the most. Information is targeted, in-depth, and—coupled with DowVision—provides the complete enterprise news service.

Get your news *where you want it,* when you want it, and how you want it, inside your work environment. Call your Enterprise Sales Representative, today.

CustomClips is a service of Dow Jones News/Retrieval.® DowVision, CustomClips and Dow Jones News/Retrieval are registered trademarks of Dow Jones & Company, Inc.
©1995 Dow Jones & Company, Inc. All rights reserved. All other products mentioned are the trademarks of their respective owners.

What's New in Notes R4?



If you are a current user of Notes, Release 4 will impress you with its improved ease-of-use, navigation and more accessible functionality. Application developers familiar with the Notes development environment will appreciate the addition of robust new tools and facilities, and system administrators will find the management and scalability of Notes R4 greatly improved.

In designing the specifications for Notes R4, Lotus has targeted six functional areas — an improved user interface, enhanced mobile support, world class messaging, robust application development facilities, industrial strength scalability and manageability, and complete integration with the Internet. In some cases, existing functionality has been enhanced, made easier to use or made more readily accessible to the user. In other instances, entirely new functionality has been added, giving all users new tools and facilities with which to accomplish the same types of tasks or altogether new ones.

The guiding principles in developing the fourth release of Notes were:

- Make Notes more intuitive and easier to use for a more diverse spectrum of end-users, especially mobile users.
- Increase programmability and design options for developers and end-users.
- Upgrade Notes to support enterprise-wide and inter-enterprise mission-critical applications through increased manageability, availability and scalability.

Of course, the essence of Notes remains its distributed document store, its system level services such as replication and security, its integral messaging system and application development environment. The modifications discussed here simply make these core components of Notes more robust, accessible and easy to use.

Improved User Interface

For end-users, work in Notes consists of finding, viewing and creating (or modifying) information. Notes R4 improves the user experience for each of these activities.

Finding information. The first thing users of R4 will notice is the introduction of a multiple user interface that allows them to "surf" documents. The panes include a folder window, a document list window, and a document viewing window. This reduces the amount of effort required to browse through a database for a document.

Some R4 applications will depart entirely from the standard Notes view, employing Navigators — a fully graphical interface that makes use of hot spots to guide users to particular documents or functions. For example, a Notes application might appear as a regional map, with specific state and local areas that the user can "click" on to launch a view or a document, or initiate a Notes action, such as replication or update.

Users will also be able to conduct easier and more complete searches for information. The standard Notes full text search facility has been enhanced with a point-and-click query builder. Furthermore, users will be able to search on attachments and OLE objects in addition to fielded text.

Viewing information. The end user's ability to customize a view that meets his or her specific needs has been one of the hallmarks of Notes. Notes R4 makes this function easier to perform, so that any user can create and customize views.

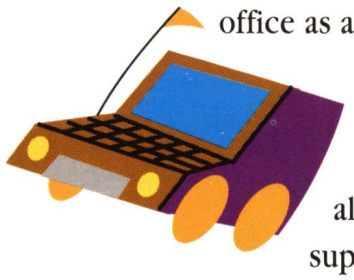
Reading a document will be easier in Notes R4. Users will be able to view file attachments without having to detach or launch them, even if the application used to create the document does not reside on the user's desktop. Notes R4 ships with over 150 file viewers for the most common spreadsheet, word processing, presentation graphics and other file types. Users will also be able to preview Notes documents before opening them, and documents themselves will include collapsible sections so that users can more easily manage browsing through and reading lengthy documents.

Creating and modifying information. Notes R4 includes an improved document editor to simplify many common end-user tasks. Quick bullets, named styles and enhanced table formatting, as well as context-sensitive menus and SmartIcons, make common editing tasks easier to perform. The introduction of a Permanent Pen eliminates the burden of highlighting and formatting each new comment or addition to an existing document.

R4 is a full OLE/2 container and client: it supports OLE/2 in-place editing, drag-and-drop and OLE automation.

Enhanced Mobile Support

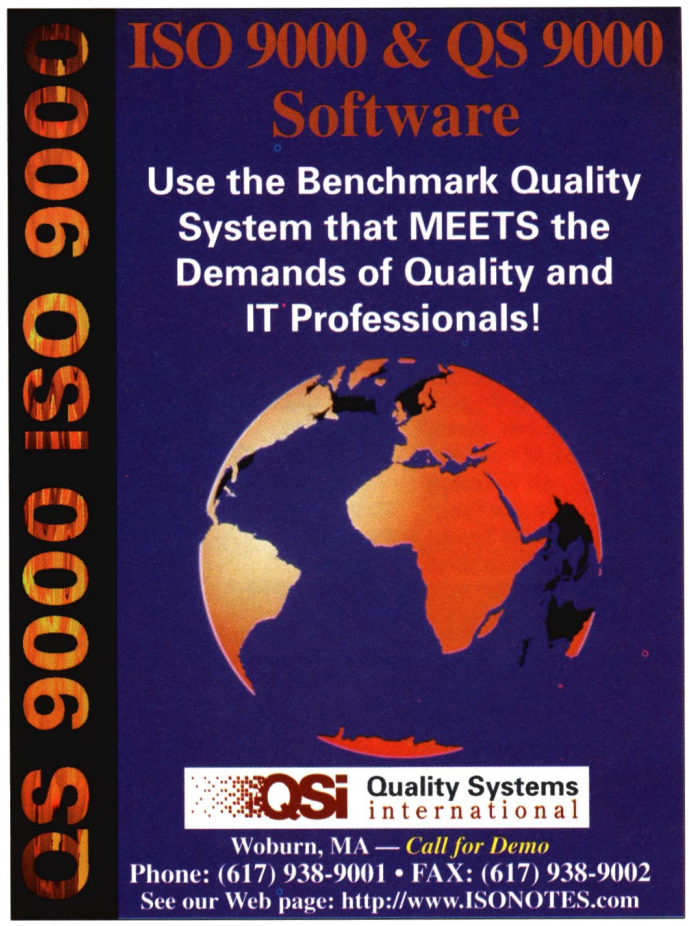
The other focus of improvement to the end-user experience with Notes is in remote and mobile computing. True mobility allows the user to regard an office as a set of tools and capabilities instead of a physical place. Notes is already unique in its support for mobile users, but R4 includes some additional enhancements. Mobile users can more easily perform selective replication using a point-and-click dialog box. On the road or at a remote site, users can employ Notes' location profiles, which "remember" special dialing instructions and mail and document handling preferences for replication.



When users need to replicate more than one database on more than one server, they now only have to make one connection to a server. The replication process will pass through the single connection to connect with other servers.

World Class Messaging

One of the most popular uses of Notes is as a mail system, and Notes R4 includes many significant enhancements to the Notes mail user interface and functionality. Most important is the adoption of the award-winning cc:Mail user interface specification, including cc:Mail's three-pane window for easy scrolling and viewing of mail messages. This not only makes


QS 9000 ISO 9000
ISO 9000 & QS 9000 Software
Use the Benchmark Quality System that MEETS the Demands of Quality and IT Professionals!
QSi Quality Systems international
Woburn, MA — Call for Demo
Phone: (617) 938-9001 • FAX: (617) 938-9002
See our Web page: http://www.ISONOTES.com

Enhanced Partner Program Planned

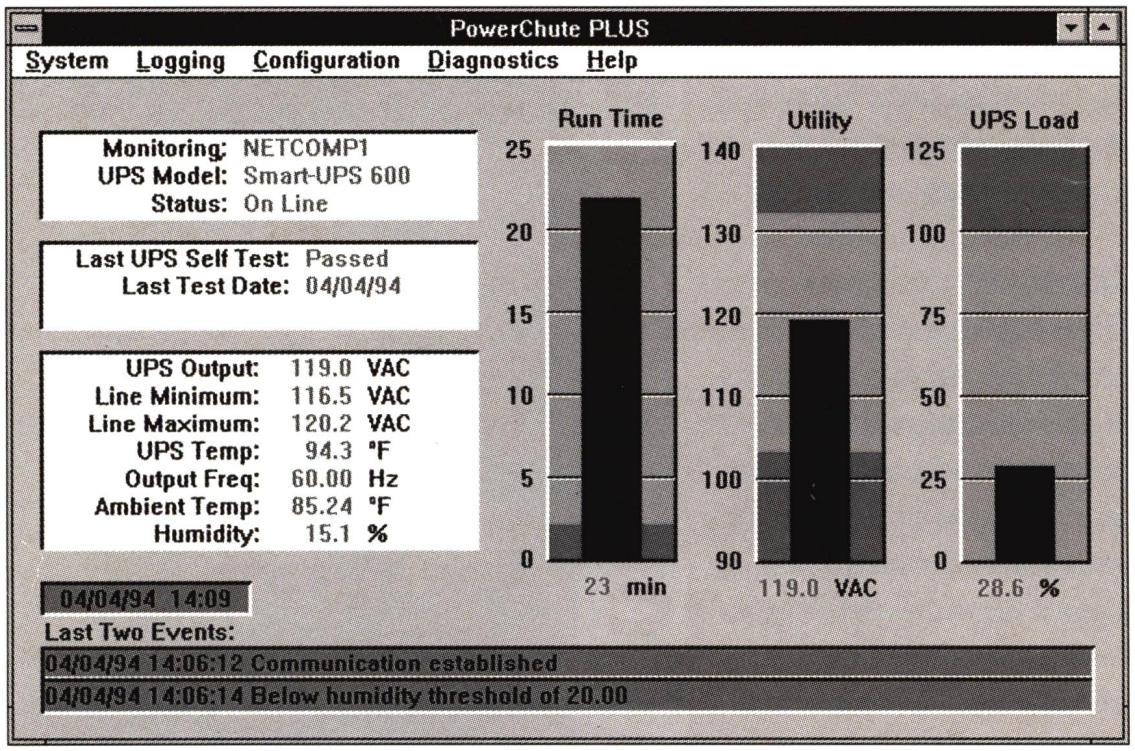
Lotus and IBM are rolling out some enhancements to the Lotus Business Partner Program during 1996. Plans include developing three levels of membership — Member, Qualified, and Premium — to recognize Partner experience, and segment Partners by business model. These models will closely resemble the core competencies of Partners — such as consulting, application development, and system and network integration — as well as those skill sets sought by customers looking to engage a Partner in a Notes or cc:Mail deployment. The levels are intended to reward partners for increased commitment and experience with the technology. The Program gives partners at each level an increasingly rich set of skills development and information tools.

New Partners will be in the Member category. They will receive resources such as CDs that offer Lotus software and other business applications to help run their company. Lotus believes this will give Members the opportunity to learn the technology and its uses first-hand. They will also be invited to "attend" monthly Lotus Vision TV broadcasts and local field-based seminars that focus on various time-sensitive technical issues related to developing and integrating solutions with Notes, NoteSuite, and cc:Mail.

Qualified Business Partners will be required to have either a certified employee on-board or a certified commercial product that meets Lotus standards. The business must also be connected to Lotus on-line. They will have access to pre-release software as well as a wider range of marketing programs than Members.

Premium Partners — top tier partners — will be required, as they are today, to demonstrate a high level of commitment to Lotus and the technology. They will receive a wider range of sales, marketing, and support programs than the other Partner levels. These include the opportunity to participate in cooperative marketing programs, sales leads, and the benefit of an assigned account representative.

No One Does Lotus® Notes® Shutdown Like APC



APC's PowerChute *plus* works in conjunction with APC's UPS systems to provide graceful, unattended shutdown of Lotus Notes servers in the case of an extended utility power interruption.

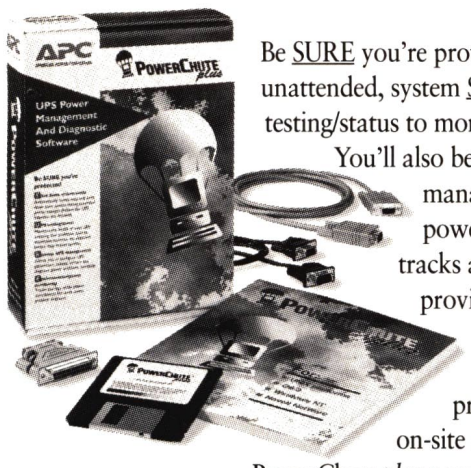
Serious Consequences

Ungraceful shutdown can have some serious consequences on your server. For instance, an improperly closed Lotus Notes Server can result in:

1) Lost database requests creating confusion, redundant work, and lost productivity

2) Lost/Corrupt data or databases significantly reducing productivity

3) Uptime delays while Notes performs "Consistency Check" to restore server to a working state.



Be SURE you're protected. In addition to extensive unattended, system Shutdown, you'll get UPS testing/status to monitor the health of the UPS. You'll also benefit from Remote UPS management and Environmental/power monitoring. PowerChute *plus* tracks and logs power disturbances and provides remote control of UPSs/servers, so administrators can quickly diagnose power problems and avoid the costs of on-site support and system downtime. PowerChute*plus* provides network administrators with more useful information which allows greater flexibility in configuring the UPS's reaction to power events, significantly enhancing UPS performance.

Solution

APC's PowerChute *plus* offers a powerful, easy to manage solution for Lotus Notes Servers. To shutdown Notes via PowerChute *plus*, the user calls the APC shutdown utility for Notes. Once Notes is shutdown, PowerChute *plus* proceeds with normal system shutdown. When the NOS has been completely shutdown, PowerChute *plus* puts the UPS to sleep to be restarted when the power returns.

Lotus Notes and PowerChute *plus*

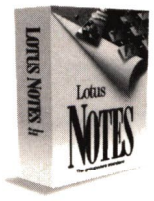
APC's PowerChute *plus* power management and diagnostic software is compatible with more than 40 operating systems. PowerChute*plus* works with APC UPSs to shutdown your system automatically and gracefully in the event of an extended power outage, whether you're there or not. For Notes users an added script file shuts down Notes servers just before shutting down the operating system.

Solaris COMPATIBLE · SCO OK · Ready! for OS/2 · yes NetWare Tested and Approved · HP OpenView Premier Partner · Microsoft Windows NT Compatible · Microsoft Solution Provider

© 1995, APC. The APC logo, Smart-UPS, Matrix-UPS, Back-UPS, FlexEvents, Measure-UPS, PowerChute, PowerChute *plus* and PowerPage are trademarks of APC. Other trademarks are the property of their owners. Specifications subject to change.

"PowerChute* plus *significantly adds to the reliability and uptime of Lotus Notes Servers by protecting them from all types of common power problems. The remote power management and diagnostics provided by APC's PowerChute* plus *is a very valuable tool for any Lotus Notes system administrator."

— Jeff Papows
VP Notes Product Division,
Lotus Development Corporation



LOTUS NOTES · Runs With Lotus NOTES · Lotus BUSINESS PARTNER

Remote Reboot Capabilities

Notes servers running NotesView can be managed remotely using APC's **PowerNet SNMP Adapter** accessories. These allow for hard reboot of a remote Notes server that has locked-up.

In addition, APC's **Call-UPS*II*** accessory can bypass network lockups by direct dialing the Notes server to gain the access necessary for remote reboot.

Modem-line protection

With many remote users connecting to Notes servers via modem, APC recommends the new **PNET4** and **PTEL1-4** data line surge suppressors to protect your server from incoming surge induced damage. The internal modem of a laptop is highly susceptible to surges travelling along serial and modem lines directly to the CPU, and must be protected by an APC **ProtectNet** device. Call now for info.

PowerChute *plus* DEMO DISK!
or
download from our NEW PowerPage™
http://www.apcc.com
Click on "Free Stuff"

APC®

AMERICAN POWER CONVERSION
800-800-4APC
Worldwide: (+1)401-789-5735
401-788-2797 fax / 800-347-FAXX PowerFax
132 Fairgrounds Rd., W. Kingston RI 02892 USA
Dept. D6

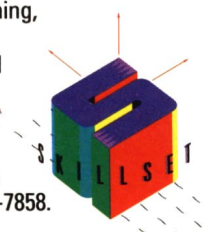
YOU CAN USE DESKTOP RECRUITER TO:

- manage resume and application tracking and archiving
- record contacts from beginning to resolution
- provide detailed reports for analysis and compliance audits

Desktop Recruiter does all this—and more—at a cost a fraction of expensive, dedicated applicant management systems, because it works on your PC with Lotus Notes.

DESKTOP RECRUITER brings the power of high-end applicant management systems to your desktop using a combination of sophisticated document management and the power of Lotus Notes groupware technology.

SkillSet Software, the makers of Desktop Recruiter, also provides solutions for compensation & benefits, training, employee relations, and other skill management activities. To find out more call (415) 328-7858.



Lotus Notes is a trademark of Lotus Development Corp. Desktop Recruiter is a trademark of SkillSet Software. ©1995, SkillSet Software. All rights reserved.

The Best $595 You Will Ever Spend on a Notes Administrator

nsfTree, the "file manager" for Lotus Notes, will save you hours by providing a batch replica method that makes replica copies of new Notes applications to multiple servers the fast and easy way. No more need for tedious and repetitive File|New Replica menu actions!

- Supports both Notes V3 and R4
- Runs on Windows
- Supports all Notes server platforms

View up-to-date product information and download our nsfTree demo from the World Wide Web at http://www.eastisle.com

For more information or to order contact:

Eastisle, Inc.
48 Grove Street
Suite 203
Somerville MA 02144
(617) 623-7917
Fax (617) 623-5450

Eastisle INC.

the Notes mail experience more intuitive, but makes Notes R4 visually consistent for cc:Mail users who have switched. Also aiding in migration is the inclusion of a MAPI service provider interface (SPI) in the Notes server, which allows MAPI clients — including the forthcoming cc:Mail release 7.0 — to access the Notes object store for messages.

The Notes mail database will also feature a number of ease-of-use enhancements. Users will be able to take advantage of a number of delivery options including "mood stamps" — graphical icons and symbols to indicate the urgency or confidentiality of a message; "prevent copying," which does not allow the recipient to forward or copy the content of a message; and "trace path," which provides the server route that a message traveled through to reach its destination.

Another enhancement is the ability to add proxy addresses to a directory, so that in addition to Notes addresses a user can have an Internet, X.400, cc:Mail or other mail address.

The Notes mail database will also include a set of predefined agents that a user can invoke, including an "out of the office" message that informs senders of a user's availability, an "add sender to address book" function that automatically copies the contents of the "FROM:" field to a personal name and address book, and an "archive selected documents" function that will automatically create an archive at convenient hours.

Robust Application Development

In Notes R3, Lotus concentrated on functionality to help developers build workflow applications to aid organizations in automating critical business processes. Companies using Notes soon found that they could improve their core processes — customer service, sales prospecting, new product development — in ways never before thought possible.

In Notes R4, Lotus has significantly enhanced the programmability of Notes by extending the Notes API to more platforms and languages, adding new functionality to the native Notes development environment, and further easing the deployment of Notes applications.

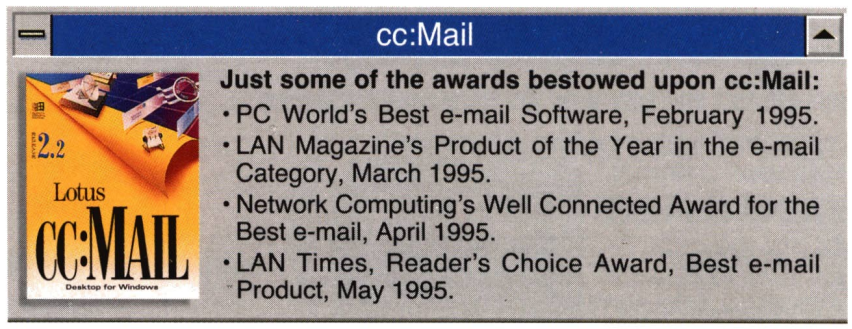
Programming at the API level. Professional application developers often approach Notes from the Notes API, from which they enjoy direct programmatic access to Notes' rich functionality and system-level services. R4 improves and extends the Notes API in several key ways. First, the Notes API has been extended to the Macintosh platform, giving Macintosh developers all the features and functionality enjoyed by OS/2, Windows and UNIX developers. Furthermore, Lotus has raised the level of abstraction for developers using high-level languages and the Notes API. There are specific implementations of the Notes R4 API that will support Visual Basic, LotusScript and C++. These higher level APIs reduce the complexity of working directly at the API level, and exploit developers' existing expertise in popular programming languages.

Critics have, after all, heaped over 30 awards on it.

From a strictly biased viewpoint, cc:Mail™ is the best, most proven, and the easiest to implement e-mail package in the world. But chances are, you'd appreciate a strictly unbiased viewpoint as well. In which case, we offer over 30 major awards won over the last two years by cc:Mail.

cc:Mail is not only a favorite of the critics, it's favored by users as well. With over 8 million users worldwide, it is the most popular e-mail package. cc:Mail is preferred by growing companies because it operates seamlessly across all platforms and works with the applications you're currently running. And it's scaleable, meeting the needs of companies with anywhere from 5 to 500,000 users. No wonder companies like Clorox and Oral-B feel comfortable relying on cc:Mail for their mission critical communication needs.

You can't afford to make a mistake choosing an e-mail package. And you won't when you do what so many other companies have already done. Choose cc:Mail from Lotus. You can even earn free training for your users through our cc:Value Program. For more information, call **1-800-872-3387 ext. B498*** or explore Lotus® on the World Wide Web at **www.lotus.com.**


cc:Mail
Lotus
cc:Mail
Desktop for Windows
2.2
Just some of the awards bestowed upon cc:Mail:
• PC World's Best e-mail Software, February 1995.
• LAN Magazine's Product of the Year in the e-mail Category, March 1995.
• Network Computing's Well Connected Award for the Best e-mail, April 1995.
• LAN Times, Reader's Choice Award, Best e-mail Product, May 1995.

Lotus
Working Together®

*In Canada call 1-800-GO-LOTUS. ©1995 Lotus Development Corporation, an IBM subsidiary, 55 Cambridge Parkway, Cambridge, MA 02142. Lotus and Working Together are registered trademarks and cc:Mail is a trademark of Lotus Development Corporation. All company names are trademarks of their respective companies.

WORDLINK

LEADERS IN NOTES AUTHORIZED TRAINING

Providing systems administration and applications development training, whether you are migrating to Notes 4.0 or are incorporating the power of Lotus Notes™ for the first time.

Seven Training Centers Nationwide

- Chicago, IL
- Schaumburg, IL
- Champaign, IL
- San Fransisco, CA
- Indianapolis, IN
- St. Louis, MO
- Kansas City, MO

For more information call (314) 878-1422
http:// www.wordlink.com
E-mail: wlinfo@wordlink.com

NOW and for the FUTURE

Lotus Authorized Education Center

Programming in the native Notes development environment. Notes R4 improves the native Notes development environment in two ways. First, it provides developers with altogether new, modern and industrial strength tools. Second, it enhances the ease-of-use from a developer's perspective, reducing the number of steps required to complete a programming task and making the development environment more intuitive.

New tools and functionality. The most significant new tool is LotusScript, a BASIC-compatible structured programming environment. LotusScript is a fully object-oriented programming environment with classes, methods and properties, providing developers with a consistent way to access Notes services.

Integration with non-Notes data is easier in R4 through the use of LotusScript Data Object (LS:DO), a LotusScript class and set of methods, properties, and events that allow access to relational and legacy databases using ODBC. LS:DO provides both read- and write-access to back-end databases, so that Notes workflow and replication capabilities are available to developers who want to create advanced applications that combine relational databases and Notes.

Notes R4 also includes an agent builder. Agents are Notes application logic (written in LotusScript or the macro language, or created from simple actions) that allow developers to automate application tasks on both servers and clients. Such tasks include data handling, replication, and messaging services. Since agents may run on both Notes servers and clients, developers have complete control over the Notes messaging and database infrastructure.

Improved Development Environment

In addition to providing developers with new tools and functionality, Lotus has concentrated on making it easier to create Notes applications by enhancing the development environment itself, making common tasks easier to complete and presenting the developer with a more intuitive and useful interface.

Two features that current Notes developers will readily recognize are the use of subforms and a non-scrolling action bar within forms and views. A subform can be inserted within any number of other forms. This improves the degree of reuse of Notes form design. Subforms are stored the same way as forms in a Notes database.

▶ pg. 14

STATE OF MISSOURI & WORDLINK

CASE STUDY

In March 1995, the Missouri State Highway Patrol chose to implement Lotus Notes o manage its paper-based investigation process. The Patrol's Information System Division managed a project that resulted in the development of their Violent Crimes Tracking and Management System. Using internal staff and consulting services provided by WORDLINK, a Premium Lotus Business Partner headquartered in Champaign, Illinois, the application was successfully implemented in July 1995.

Now, with Lotus Notes, as a call comes in that a violent crime has occurred, analysts are dispatched to the scene carrying a laptop computer running Notes. The analyst completes the proper reports, inputting information on every detail and keying in information each witness has provided. The analyst begins by entering the basic information on the main report form, case number and date. Then each subsequent report is linked to the first. There is a standardized form for autopsies, witness statements, etc., and Notes manages the information on those reports so that it can be viewed in a consistent format.

"The new system has improved our ability to manage the high volume of data associated with violent crime investigations," said Jerry Wethington, IS Director of the Highway Patrol. It allows the investigators to logically organize the evidence and information collected. "Utilizing Notes' full-text searching capabilities has enabled investigators to identify common characteristics among cases that would in the past have seemed unrelated," commented Wethington. The ability to connect case information increases the number of leads to investigate, flagging information that the officers may not have seen under the old system.

"Notes also provides us with the ability to put together a formal, comprehensive case book for the prosecution," said Wethington. With fully-indexed, standardized reports, cases are well organized and much easier to investigate and prosecute, which should result in more convictions.

You've received vital materials that the sales force needs this second.

But the information isn't all electronic.

And the team is spread over a continent.

(So skywriting isn't an option.)

Then you combine Lotus Notes with IBM ImagePlus.

Now putting it into the system is as good as putting it all into their hands.

[Can your software do this?]

The faster you can get information out into your organization, the faster your people can put it to work.

That's the reason why Lotus® Notes® has become such a fundamental part of business everywhere. It not only makes the most current information available to everyone across the organization, it helps people work faster, work smarter and – most important – work together.

But what about information you receive or produce that doesn't start out in electronic form? Such as videos, order forms, faxes and correspondence. Or materials specific to your business, like X-rays or photographs.

Well, now Lotus Notes works hand-in-hand with IBM's scalable ImagePlus.® This is the same imaging solution that handles millions of documents every day in some of the world's busiest financial and insurance companies.

The combination of Lotus Notes and ImagePlus allows you to build a system that will digitize the full range of

*Outside North America, contact your local IBM office. The IBM home page is located at http://www.ibm.com. IBM, ImagePlus and OS/2 are registered trademarks of International Business Machines Corporation. Lotus and Lotus Notes are registered trademarks of Lotus Development Corporation. UNIX is a registered trademark in the U.S. and other countries, licensed exclusively through X/Open Company Limited. Macintosh is a registered trademark of Apple Computer Corp. Windows is a registered trademark of Microsoft Corporation. © 1995 IBM Corp. All rights reserved.

your business information. Catalog images for future use. Even automate the flow of documents so they move efficiently from one person to the next, around the office or around the world – empowering people to collaborate using the broadest variety of materials.

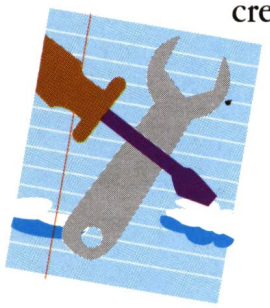
Now information that starts with one person can be immediately accessible to all. And you can use one familiar interface across all of your desktop and mobile computers, whether they run Windows,® OS/2,® UNIX® or Macintosh.®

Take advantage of our products and skills (and those of our industry partners) to help your people work more closely together, sharing up-to-the-second materials. Just call us at 1 800 IBM-3333,* ext. GA150, or visit our Web site at http://www.software.ibm.com for more information.

IBM®

Solutions for a small planet™

The R4 action bar is a non-scrolling area that remains "affixed" to the screen when the user scrolls through a Notes form or view. This allows developers to create actions on the action bar while looking at the appropriate fields on the screen, rather than switching back and forth.



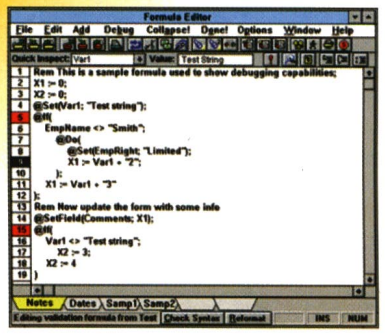
For end-users with only moderate Notes development experience, Notes R4 includes considerable programming functionality without requiring any knowledge of LotusScript or macro language syntax. More fully functional application templates combined with easily modified canned actions makes end-user application development more realistic for a larger number of users.

Notes R4 includes a number of other features that make it easier to get end users up and running with a Notes application. Once in a Notes applications, users can take advantage of Navigators and hot spots. For example, developers can create a Navigator that displays a map of a sales territory. The user clicks with a mouse on a hot spot, such as a city within the map, and the developer can display a Notes Document and/or View. With Navigators, developers can create Notes applications that do not require that users learn the Notes user interface. Instead, the end-user's business terms and visualizations are used in Navigators to assist end-users through the application.

Users will also find it easier to launch executables from directly within the Notes Workspace and from within OLE servers.

The latest formula for Notes® success

With FORMULA EDITOR, you'll cut your Notes® formula development time in half. This Cambridge Software Group productivity tool replaces Notes'® editing window with a full-featured programmer's editor.



No serious Lotus Notes® developer should be without FORMULA EDITOR

FORMULA EDITOR, v. 2.0
single copy is only **$149.95**
Upgrade *for registered users* **$39.95**

All Cambridge Software Group products come with a 30-day money-back guarantee.

FORMULA EDITOR
New Version 2.0 offers these features:
- Formula post-debugger
- Full support for keyboard macros
- Tabbed edit windows
- Drag & Drop editing
- Integrated Formula Catalog

& much more

Plus you'll have these great features which have made Formula Editor such a hit:
- Automatically formatted formulas
- Search and replace
- Syntax checking
- Formula printing
- File saving and retrieving

Cambridge Software Group, Inc.
101 Rogers Street, Suite 214
Cambridge, MA 02142
Call 800-792-7248

PERSEPTIVE BIOSYSTEMS, INC. & CAMBRIDGE SOFTWARE GROUP, INC.

CASE STUDY

PerSeptive Biosystems designs, manufactures and markets proprietary products and systems that increase the ability to purify, analyze and synthesize biomolecules for applications from research to manufacturing. Based in Framingham, Massachusetts, PerSeptive Biosystems began looking at Lotus Notes in December of 1994 to provide a vehicle for the sales forces' distributed information.

Prior to implementing Notes, all of the company's sales and marketing information existed in several disparate systems. These different applications made it very difficult to manipulate and view information in different ways. In addition, their sales force was spread across the world and they were in need of a system that would effectively distribute leads to the field.

For the installation and application development of Notes, PerSeptive Biosystems partnered with Cambridge Software Group — a Premium Lotus Business Partner that specializes in Lotus Notes consulting services for Notes Applications Development and Notes Integration with other applications. Cambridge Software assisted with the development of an advanced quoting system for PerSeptive Biosystems' sales application.

As the company began to implement its Notes-based sales force automation system, it realized that other Notes-based databases were essential to build a foundation for the sales administration database. Therefore, PerSeptive began to develop applications that focused on other aspects of the company — such as marketing and communications, help desk information, human resources and administration — and found that Notes was able to help where qualitative information was needed regarding clients, projects and equipment.

With Lotus Notes, PerSeptive Biosystems is able to leverage fewer resources worldwide as the number of Notes-based applications continues to grow. And, through shared databases, all employees, regardless of location, are able to communicate and share information that is vital to the success of the company.

Industrial Strength Scalability and Manageability

Notes R4 has been designed to fully support enterprise-wide and inter-enterprise mission-critical applications through increased manageability, availability and scalability. This has been achieved by introducing a new management tool and improving the reliability and scalability of Notes servers.

Notes View is an SNMP-compliant network management tool that provides administrators with centralized monitoring and control of servers. With Notes View, administrators can view the status of servers on a real-time basis and manage servers remotely. They can make changes to field-based servers from a central management site, or vice versa. Changes can even be made from a Notes View laptop that is

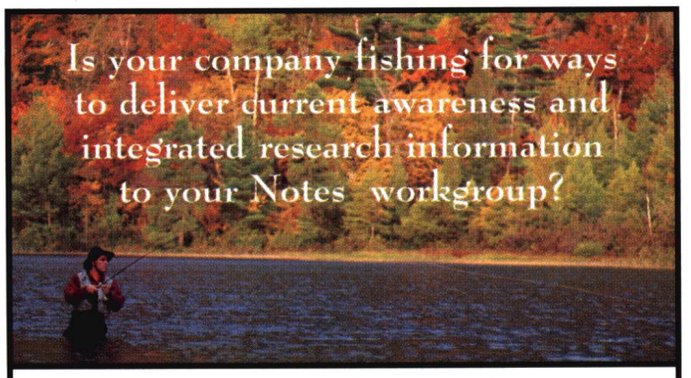
MERCK & CO.
& SANDPOINT COMPANY

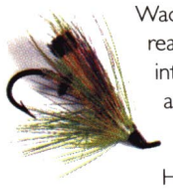
CASE STUDY

As a worldwide, research-based pharmaceutical manufacturer, Merck & Co., Inc., based in Whitehouse Station, NJ, relies on several sources of external information for monitoring any possible competitors to its pharmaceutical compounds during development and marketing, tracking the scientific and commercial potential of its existing products, and for up-to-date information on recent clinical trials and new chemical entities. Until two years ago, Merck relied heavily on internal staff to manage and disseminate this information.

In 1993, Tom Oberleiton, Associate Director of Business Information for Merck & Co., reevaluated the process and transitioned over to an integrated system based on Lotus Notes and a product called SandPoint Hoover™ from Lotus Premium Business Partner, SandPoint Company in Cambridge, Massachusetts. His aim was to switch from a service bureau internal structure and leverage on technology to empower Merck's decision makers with direct access to information at the desktop level. He chose Lotus Notes as the best management and dissemination platform and Hoover as the best software for gathering information. Providing a single user interface, Hoover is an active "information agent" that searches, retrieves and integrates information from over 5,200 sources, including live news feeds, on-line databases, and internal intelligence.

Oberleiton and SandPoint worked together to tailor Hoover to Merck's specific needs. Incorporating targeted solutions such as SandPoint's Competitor Compound Tracking System and a number of Pharmaceutical Databases, the result was a complete network that allows Merck & Co. to receive customized news feeds on a daily basis and search at will through important pharmaceutical studies, on-line databases and publications.


Is your company fishing for ways to deliver current awareness and integrated research information to your Notes workgroup?



Wade into the gushing flow of electronic data—realtime news, online services, and corporate intelligence—and you can spend hours casting about for information.

Unless you have SandPoint's Hoover.™

Hoover is information agent software that fishes all your favorite information streams. It integrates the sources, organizes what you need to know, and delivers it to your Lotus Notes® or Lotus InterNotes® workstation.

For more information about how Hoover from SandPoint can automatically land the information you want, call us at 1-800-775-4442.

SandPoint

Lotus PREMIUM PARTNER

SandPoint Hoover, for Integrated News and Research.

disconnected from the network. As a modern management tool, Notes View features a graphical user interface, and provides administrators with topology maps as well as standard Lotus facilities such as InfoBoxes and charts. Because it is SNMP-compliant, it easily sits within a company's SNMP-based management platform, such as IBM NetView/6000 and HP OpenView.

R4 is based on a full 32-bit architecture, allowing it to fully exploit the larger multiples of multi-processor machines. This will improve the availability and scalability of servers, helping to ensure user access and reducing the number of servers required to support a large Notes implementation. The improved scalability should support over 500 active users in a concurrent session and up to 1,000 light users.

Furthermore, replication has been streamlined and simplified. First, speed has been increased by order of magnitude, reducing the amount of time consumed by replication. Second, R4 supports field-level replication, reducing the amount of data that must be synchronized during the replication process. And third, hub servers will support multiple replicators, so that replication can be performed in parallel instead of as a sequential process.

Complete Integration with the Internet

Notes R4 builds upon the current Internet support of R3 to more fully integrate Notes with the Internet.

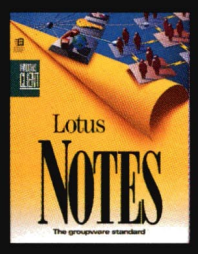
The replication process will be easier to set up and manage, with IP addresses appearing as any other Notes server in a replication dialog box. Administrators will be able to set replication time-outs to account for the sometimes unpredictable nature of Internet connectivity. A server can be directed to wait for a specific period of time to allow another server to get connected.

Support of "anonymous" clients — access to a server on the Internet without exchanging public and private keys — will allow an organization to make a Notes server accessible to any Notes user on the Internet.

The InterNotes Web Navigator can translate a URL into a Notes document. The document retains the fidelity of its original look and content, but is now managed in a Notes environment.

NOTES IS WORKING.

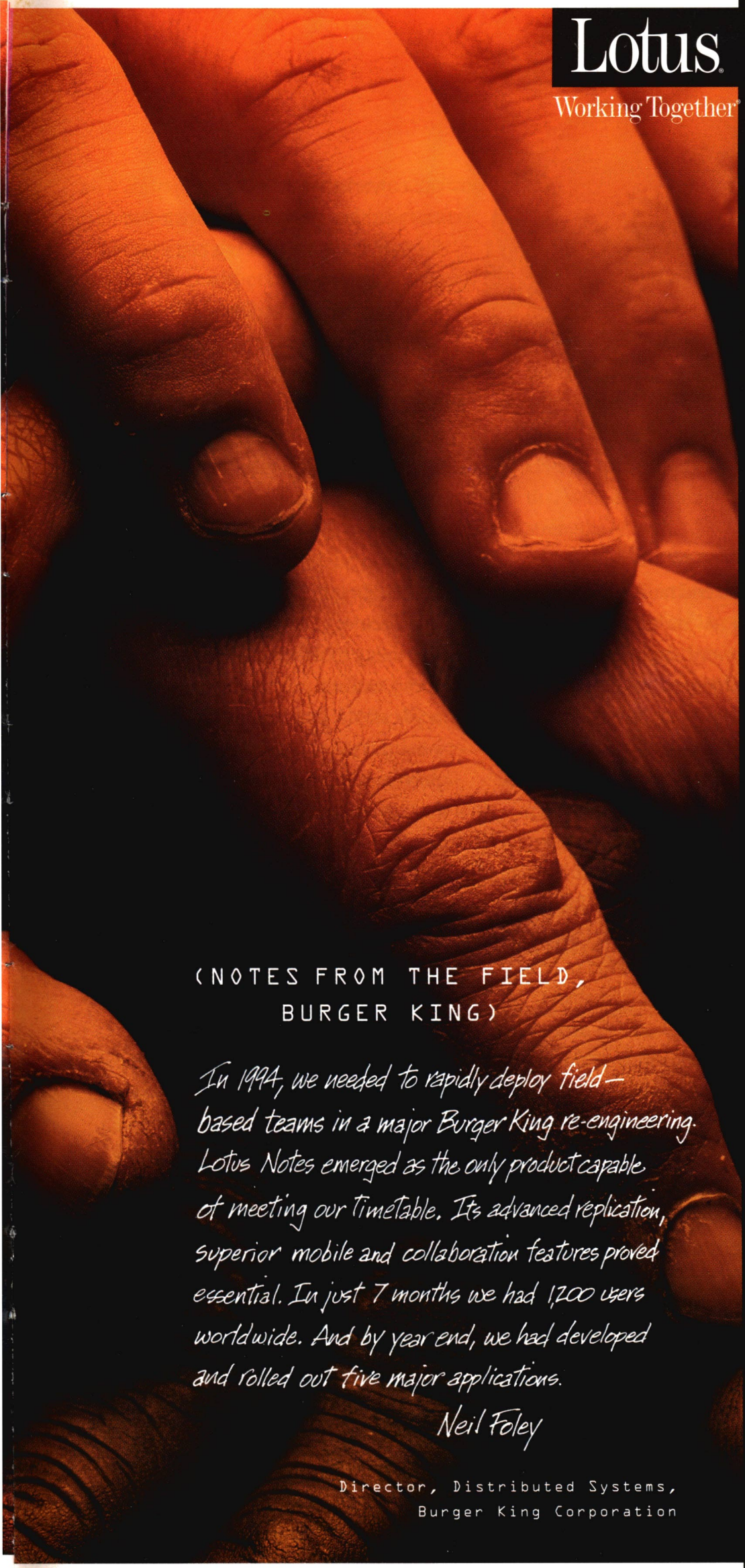
Today, Lotus Notes® helps organizations of all sizes coordinate critical business information. To get the right products to market faster. To get salespeople the information they need to close the deal. To streamline processes like new drug approvals, mortgage loan processing and health care delivery.



Notes™, and only Notes, gives you access to all the information you need - whether it's in e-mail, a relational database or

©1995 Lotus Development Corporation, 55 Cambridge Parkway, Cambridge, MA 02142. Lotus Notes and Working Together are registered trademarks and Notes is a trademark of Lotus Development Corporation. All companies are registered trademarks of their respective companies.

For more information on Lotus Notes or for a copy of The Book on Groupware, call 1-800-828-7086 ext. B503 (1-800-GO-LOTUS in Canada). Or explore Lotus on the World Wide Web at www.lotus.com.



Lotus
Working Together

(NOTES FROM THE FIELD,
BURGER KING)

In 1994, we needed to rapidly deploy field-based teams in a major Burger King re-engineering. Lotus Notes emerged as the only product capable of meeting our timetable. Its advanced replication, superior mobile and collaboration features proved essential. In just 7 months we had 1,200 users worldwide. And by year end, we had developed and rolled out five major applications.

Neil Foley

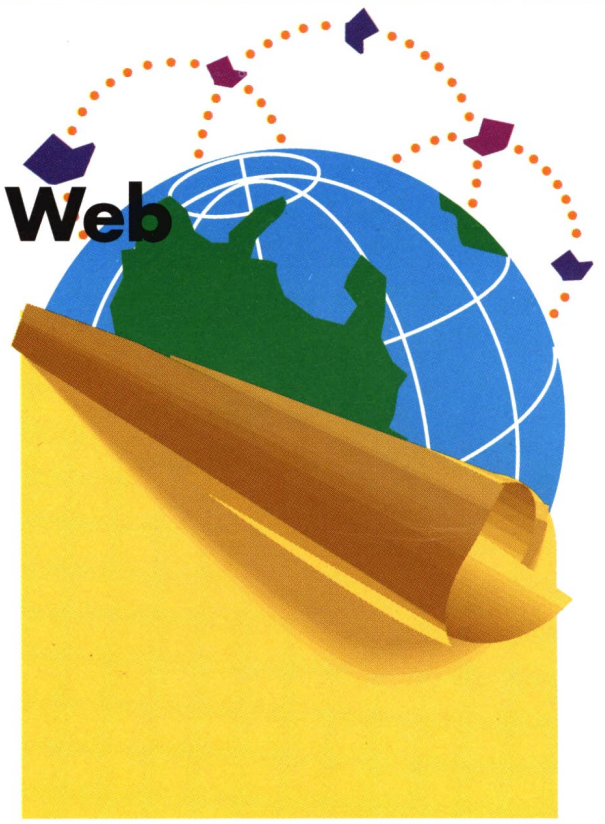
Director, Distributed Systems,
Burger King Corporation

host system, your favorite desktop application, or even on the Web. And Notes' unique replication technology lets you be part of the team, even when you're traveling. That's because Notes is the only proven, open platform for communicating, collaborating and coordinating mission-critical business processes.

Your people work around the clock. They work around the world.

They're working on the future of your business. Shouldn't Lotus Notes be working for them?

Lotus Notes and the World Wide Web



Both Notes and the Web were invented to support collaboration over local and wide area networks. Like other technologies, such as relational databases and desktop productivity tools, that share some attributes with groupware in general, the Web is sometimes viewed as redundant to, and thus competitive with, Notes. However, just as those other technologies are appropriate to their own class of applications and have proven of greater value when integrated with Notes rather than used instead of it, a look at the Web and its applications reveals its distinct and complementary nature to Notes as well.

World Wide Web Applications

The Web provides a global, public means of information publishing and consumption that is based on a "pull" model. Web clients specify the URL or document name and request a copy of that HTML page, which is transmitted across the net, then displayed on the client's workstation. Those pages offer a document-centric, rich-media presentation of information, as well as a hypertext linking structure.

The World Wide Web is an ideal way to make marketing, corporate, and service and support information readily available for public access. In this way, the Web naturally complements traditional forms of communication, such as direct mail, advertisements in various media, "fax back" systems, toll-free telephone lines, and interactive voice response systems. Planned security and application development enhancements to the Web aim to make it a viable medium for transaction-based electronic commerce.

Lotus Notes Applications

Like the Web, Lotus Notes has been used by many organizations to serve as a publishing medium, focused more on information sharing within and among organizations. It has been Notes' role as platform for application development and deployment that has established it as a groupware standard. Notes' object model, messaging services, security facilities, desktop and database integration and client/server architecture lend themselves to a class of applications not feasible on the Web. The characteristics of such applications include one or all of the following:

- **Interactivity.** Business collaboration requires the active participation of team members, not just the one-way sharing of knowledge from one source to many readers. Brainstorming, idea sharing and problem solving require that all participants contribute their input.
- **Notification.** Finding the right piece of information at the right time by browsing through a library of documents is an inefficient process. In many cases, users would benefit from having the information find *them* at just the right time. A system that combines information storage with integrated messaging services, such as Notes, augments the "pull" model of the Web with a "push" model of information distribution. When an author posts a new item to the system, an E-mail message can also be created that contains a pointer to that information and sent to the appropriate coworkers. Recipients simply click on the pointer to view the relevant document. To do this on the Web is a complicated multi-step process.
- **Triggered processes.** Similarly, Notes itself can monitor the state of data, initiating an action based on the state of particular fields. In many cases, the action may be the direct result of a lack of user activity (a sales person has not contacted a customer in 30 days, a contract to be approved is waiting for a specific person for over 24 hours) or an external condition (a client's credit rating has changed, a deadline is approaching). Such an application requires the ability to develop server-based agents.
- **Customization.** In many collaborative applications, individuals will find reason to want private, tailored views of data that support their specialized tasks. The capability to flexibly view information in different ways is fundamental to enabling all participants to grasp the key elements of the business process and the context in which they exist. Notes forms and views provide each user with the ability to customize how information is presented to them without affecting the logic of an application.
- **Multiple levels of security.** Some business documents contain information appropriate for some readers but which should remain hidden from others. For example, a personnel review form might be routed through a series of team members for comments. It would not be appropriate for all members to be able to read the comments made by others or view the salary information, so those fields should be hidden from general view, while authorized readers have access to the entire form. While the Web is developing some measure of security and authentication, it will be some time before it can be applied to specific fields within a document.
- **Integration with other resources.**

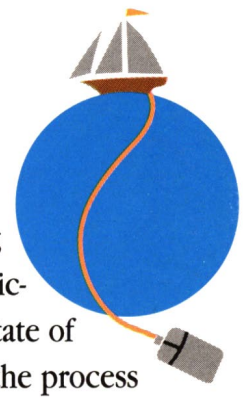
Not all information is native to a collaborative system: some shared information resides in desktop productivity tools (e.g. spreadsheet tables) and host-based relational databases. Collaborative systems do not replace these systems, but rather must seamlessly integrate with them, so that as changes are made in a desktop document or a database, they are automatically reflected in the collaborative system.

- **Mobile user support.** More and more users today need to perform their work away from the office. Users need to be able to continue to browse through data, compose edits and responses, and complete steps in a workflow process even while disconnected from the corporate or public network. Replication services allow users to make a copy of a database on a laptop computer, work with it while traveling, and later synchronize all changes with the server.

Notes and the Web: Distinct & Complementary

By its very nature, groupware overlaps with other information technologies. The commonalities between groupware and these other technologies do not render them competitive; on the contrary, groupware is essentially complementary to them. Each technology supports a distinct class of applications, while their integration with groupware leverages the strengths of both.

Likewise, the World Wide Web excels at a class of applications that involve the one-to-many publishing of public documents. The straightforward nature of "broadcast" applications lends them to the generic use of so-called "shareware" client and server software. Investments by third parties in the Web's forms-based metaphor are largely aimed at a set of transaction processing (i.e. electronic commerce) applications. Notes, on the other hand,



excels in a broad class of business process applications that require ongoing action by some or all participants and in which the state of data as it moves through the process is as important as the data itself. The complex nature of these applications tend to require a highly sophisticated and customizable environment, such as Notes, which has demonstrated a remarkable return on investment when applied to mission-critical business processes.

Applications that include both types of requirements will naturally benefit from the integration of Notes and the Web, in which information most appropriately gathered and managed by Notes can be easily made available to the large population of Web users, and, in turn, an event triggered by an activity on the Web can quickly become part of a non-public business process.

Lotus

DIRECTORY OF SERVICES

CONSULTING AND DEVELOPMENT

Cambridge Software Group
101 Rogers Street
Suite 214
Cambridge MA 02142
(617) 577-0600
Katie Donovan

Information Technologists, Inc
555 North Lane
Suite 5040
Conshohocken PA 19428
(610) 832-7378
Ruth Cowell Allen

Quality Decision Management (QDM)
200 Sutton Street
Suite 225
North Andover MA 01845
(508) 688-8266
Sharon A. Fischer

SandPoint Company
One Canal Park
Cambridge MA 02141
(617) 441-2265
Ellen P. Slaby

ENTERPRISE COMPUTING

Carthage International, Inc.
2501 Oak Lawn Ave.
Suite 275
Dallas TX 75219
(214) 526-7990
Thomas White

Dow Jones & Company, Inc.
P.O. Box 300
Princeton NJ 08543
(609) 520-4395
Loretta Tracy

HIGH-TECH MANUFACTURING

American Power Conversion (APC)
132 Fairgrounds Road
W. Kingston RI 02892
(800) 800-4APC
Tanley Martin

HUMAN RESOURCES

SkillSet Software, Inc.
535 Middlefield Road, Suite 120
Menlo Park CA 94025
(415) 328-7858
Don V. Darrah

SYSTEM INTEGRATION

IBM/Networking & Software Division
Building 1, Route 100
Somers NY 10589
(800) IBM-3333, ext. GA150

▶ pg. 22

KEY
- Banking/Financial Services
- Consulting & Development
- Document Imaging
- Enterprise Computing
- Health Care
- High-Tech Manufacturing
- Human Resources
- Professional Services
- Real Estate Solutions
- System Integration
- Training
- Utilities
- Voice & Telephony

The fax machine and the copy machine are at polar opposites on my floor. And the nine people I had to get drafts of my document to? Two on my floor. Three on floors you'd be embarrassed to take the elevator to. And four not even in this office.

How I walked four miles in a 9,000 square foot office.

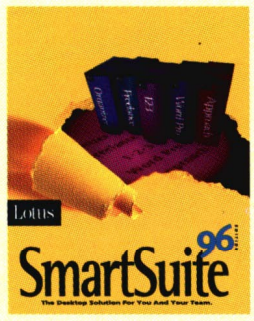
And then I had to get each draft back with comments, and incorporate those comments into my document by the following morning. So I basically faxed and copied and delivered and then typed and re-typed and re-faxed and re-copied and re-delivered

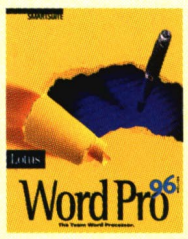
until my feet hurt and my legs were tired and I was sitting there starting to wonder why the heck running shoes aren't considered standard business attire.

CHANGE THE WAY YOU WORK.

WORK TOGETHER.

The Desktop Solution For You And Your Team.





Lotus Word Pro™ 96 *makes it easier to create, review and edit collaborative documents. It's the only word processor that bridges the gap between individual and team productivity.*

Lotus 1-2-3.® *This is the only spreadsheet that works for both you and your team. Lotus 1-2-3 makes it easier for individuals or groups to create, review, and edit spreadsheet models.*

Lotus Freelance Graphics® 96 *gives both you and your team a faster, easier way to create and collaborate on business plans, reports and proposals that can double as presentations.*

Lotus Approach® 96 *is the award-winning database that lets you and your team track, manage, and analyze information. So easy to use, you can get results within 2 hours of opening the box.*

Lotus Organizer® *offers both you and your team the ability to track calls, manage tasks, share calendars, see other people's availability, and even book your conference rooms over a network.*

Introducing new Lotus SmartSuite 96 for you and your team. Nothing else offers a better way to help people work together. It improves the way you communicate. It simplifies your work flow. It helps you create, design, and structure everything from a simple report to a major group presentation. And it can be yours for as little as $199.* Versions of SmartSuite® are available for Windows® 95, Windows 3.1, and OS/2®. For more information, reach us at **1-800-TRADE-UP, ext. B501** or on the World Wide Web at **www.lotus.com.**

Lotus
Working Together®

In Canada call 1-800-GO-LOTUS. *Upgrade only. ©1995 Lotus Development Corporation, 55 Cambridge Parkway, Cambridge, MA 02142. All rights reserved. Lotus, Working Together, Lotus SmartSuite, Approach, Freelance Graphics, 1-2-3 and Lotus Organizer are registered trademarks, and Word Pro is a trademark of Lotus Development Corporation. Windows is a registered trademark of Microsoft Corporation, and OS/2 is a registered trademark of IBM Corporation.

NETIMAGE

Lotus Notes Services

- Implementation & Installation
- Integration of Add-In Products
- Application Design & Development
- Lotus Authorized & Customized Training

NetImage Inc.
67 Federal Road
Suite 300, Building A
Brookfield, CT 06804
Phone: (203) 775-3445
Internet: sales@ni.com

Course Materials
For Lotus Notes®

Complete Curriculum
High Quality - Comprehensive
Value Priced - Customizable

Use our materials to publish your own courses that can be delivered to your customers or employees by your technical trainers.

Kurchak Associates
(508) 839-3109
or
Kent Kurchak@CSERVE@NOTES NET

Information Technologists Inc.

A professional services and distribution organization providing information technology consulting services and products to organizations that are committed to rapidly implementing strategic business solutions based on an open systems computing environment.

555 North Lane
Suite 5040
Conshohocken PA 19428
(610) 832-7378

COLLEGIATE HEALTH CARE & NETIMAGE

CASE STUDY

Because of Lotus Notes, Collegiate Health Care, based in Norwalk, Connecticut is able to operate as a national company and provide its customers with better service.

In 1993, NetImage, a Lotus Business Partner, implemented Lotus Notes for Collegiate Health Care. Notes has allowed Collegiate to operate as a "virtual" company. According to Collegiate Health Care's CEO Brett Prager, "Becoming national became 'real' more quickly than expected because of the technology." Since this installation, Collegiate has been able to hire the right employees based on skill and experience rather than what state they live in.

Notes allows Collegiate employees located in regional offices throughout the United States to communicate via E-mail through Notes. The sales force is more productive because their communication is quicker and more frequent. And, Notes databases allow sales managers to track sales as they are happening. Data can now be accessed by all company members. Prior to the Notes installation, data was stored on each individual's system and documents were passed from person to person. Notes now provides access to databases that allow users to share information simultaneously.

Collegiate has also been able to increase its effectiveness in servicing its customers in university health care centers, who outsource their health care facilities to Collegiate. Direct lines of communication between Collegiate Health Care and the university health centers have been opened and have accelerated business processes. In the fall of 1995, with the help of NetImage, Collegiate plans to roll out Notes to the medical practitioners. They will use Notes applications to schedule and track patients. Specific Notes applications have been developed by NetImage for the health care centers and have been instrumental in Collegiate Health Care gaining new business.

"We are using Notes to radically change health care by taking what has been a traditionally expensive system and making it affordable to the common man," Prager said.

SYSTEM INTEGRATION *(Continued)*

NetImage, Inc.
67 Federal Road,
Suite 300, Building A
Brookfield CT 06804
(203) 775-3445
Dale Whitney

Quality Systems International
3 Baldwin Common Green
Suite 306
Woburn MA 01801
(617) 938-9001
George D. Potter, Jr.

WorldCom
1001 Fannin
Suite 2000
Houston TX 77002
(713) 650-6522
Shala Phillips

TRAINING

Kurchak Associates
15 George Hill Road
Grafton MA 01519
(508) 839-3109
Kent Kurchak

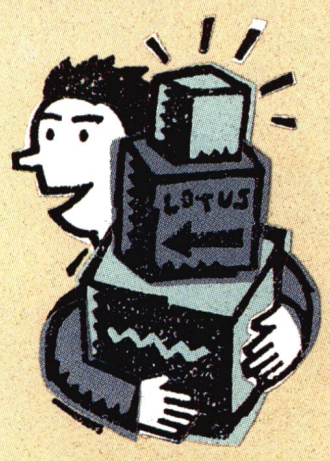
WORDLINK
2009 Fox Drive
Champaign IL 61820
(217) 359-9378
Craig Pessman

UTILITIES

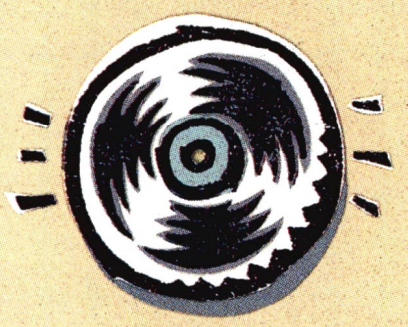
Eastisle, Inc.
48 Grove Street
Suite 203
Somerville MA 02144
(617) 623-3877
Alan Dunkel

Getting Started Developing Lotus Applications.

The Lotus Connection makes it easy.



① Get the Lotus Connection with everything you need to start developing killer apps, including a Lotus Notes® client, cc:Mail™ Mobile and SmartSuite®, Lotus' leading desktop productivity applications.



② Look forward to quarterly CDs containing the latest developers' tools and documentation as well as technical and marketing information.

③ Peruse the monthly newsletter, Lotus Connects.

④ Get all this for just $495.

Don't delay! There's a huge demand for these applications and you're just the person to create them. Your company will thank you for it.

Lotus
Working Together

For more information, call **1-800-START-SMart, ext. B502.***

*In Canada, call **1-800-GO-LOTUS**. ©1995 Lotus Development Corporation, 55 Cambridge Parkway, Cambridge, MA 02142. Lotus, Lotus Notes, SmartSuite and Working Together are registered trademarks and cc:Mail is a trademark of Lotus Development Corporation.

Meet the Ultimate Paper Boy!

Delivering Custom News, Fast.

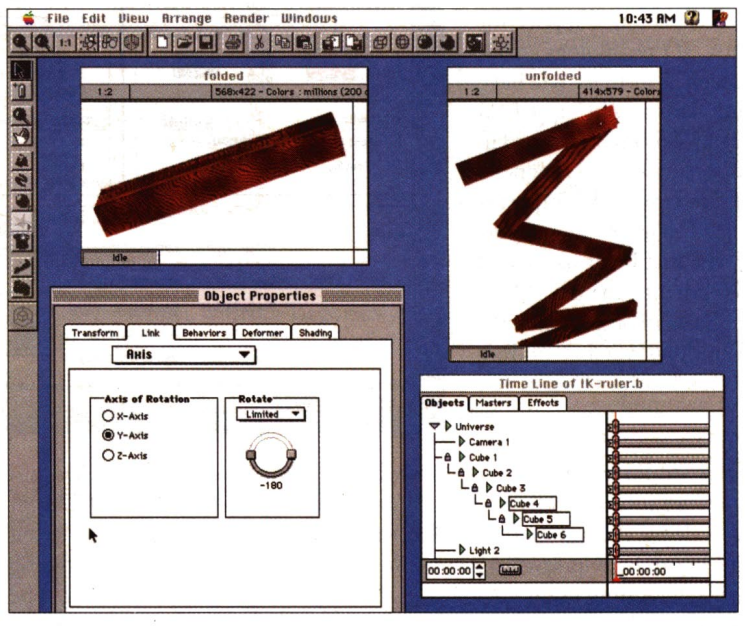
There are 25,000 business articles published every day, you care about 7. Finding those 7 may sound like an insurmountable task, especially for an 11 year old. But not for the ultimate paper boy because he's delivering Carthage Today, the leading news service for corporations.

Carthage Today saves businesses time and money by filtering and delivering customized information from more than 2,000 real-time sources including Dow Jones and Ziff-Davis over Lotus Notes™, e-mail and the Web. Now using Paracel's FDF, the world's fastest, most powerful text filtering engine, Carthage Today offers a quick two-day startup with no interfaces to learn and no costly servers or satellites to buy.

CT
CARTHAGE TODAY

For corporate news there is only one paper boy!!
Call 800-748-3737 for a month free trial.

Ray Dream Studio brings together 3-D and animation



Inverse kinematics in Ray Dream Studio will get you from here to there in one simple step — once you've put in the labor to set up the appropriate relationships.

By David Hauer

Package offers event-based animation and basic inverse kinematics at low price.

Ray Dream Inc. is no Johnny-come-lately to the Macintosh 3-D world, but with Ray Dream Studio, it has finally entered the fourth dimension.

The company's new all-in-one 3-D package comprises Ray Dream Designer 4.0, Ray Dream Animator, the Extensions Portfolio API and a collection of 3-D clip art called Dream Models. Designed for graphic artists, the $499 Studio also has features that will appeal to advanced 3-D users.

The heart of Ray Dream Studio is Designer 4, which offers numerous interface improvements and new features over Version 3.0 (see 02.14.94, Page 41). Among these are better camera-manipulation tools; expanded linking options; visible light cones; and a viewable, modifiable Production Frame. (Ray Dream is continuing to sell Designer as a separate $99 application.)

Furnished studio

The multipurpose free-form modeler elegantly combines lathing, lofting, sweeping and path extrusion. Cross-sections, extrusion paths and contour projections are fully editable spline curves and can now be imported from a drawing program, making this a powerful tool indeed. New to Version 4 are four Deformers: Stretch, Bend & Twist, Scale XYZ, and Shatter. User control over these tools is limited but effective and intuitive.

Designer's powerful shader technology has been enhanced with a glow channel and color-enabled transparency and reflection channels. For those disinclined to get their hands dirty composing shaders, Designer 4 includes more than 350 of them.

The new Scene Wizard is essentially a collection of configurable scene templates. Novices can get the hang of object and light placement, while experienced users may appreciate being able to start their projects with more than an empty Scene. We wish we could save our own templates for reuse, however.

Longtime users will rejoice at the new Phong renderer, which supports shadows and transparency (a bug prevents transparency from working with procedural shaders). However, Phong's theoretical speed advantage is content-dependent; all our files rendered more quickly with the ray tracer. Meanwhile, ray tracers can now place images or textures as backgrounds that show through transparent objects.

The good and the bad

Designer sorely lacks point-level editing capabilities, which let you reshape an object by pushing or pulling on a single point or vertex. Also devoid of Booleans and metaballs, it is not ideally suited to modeling organic shapes, such as human faces. Nor is it extremely precise. Both the interface and the renderer are slow, and antialiasing is not all it could be. There is currently no network-rendering option.

In addition, the interface is still idiosyncratic. A profusion of approaches, nonstandard tools and ambiguous icons forced us to frequently resort to the manual. Navigation can be cumbersome, while the relationship between the modeling and scene-building environments is both nonintuitive and cumbersome. Among other problems, there's no good way of discarding multiple changes to an object before jumping back into the scene (by way of a nonstandard, confusingly placed button) and locking them in place.

Yet, elsewhere, Studio's interface goes

See Ray Dream, next page

score card

Ray Dream Studio

Ray Dream Inc.
List price: $499*
Overall value ◆◆◆◆

There is a great deal to like about Ray Dream Studio. First and foremost, it offers a complete 3-D package with Designer, Animator and clip art at an unprecedented low price. Eschewing hot-button items such as Booleans, Studio's tool set will suffice for many 3-D tasks — although precision modeling and complex organics are not among them. Shortcomings include some interface unwieldiness, weak 3-D import and export capabilities, and the lack of point-level and motion-path editing. Performance is also unimpressive. The new event-based animation capabilities are excellent, however, and the (basic) inverse kinematics capabilities alone will justify the price for some. In some areas, such as shading composition and animation control, Studio compares favorably to more expensive packages. There are rough edges, but this version seems more stable than Designer 3.0 was on its release.

Performance ◆◆◆
Features ◆◆◆
Ease of use ◆◆◆◆
Documentation/support ◆◆◆◆

**Upgrades from Ray Dream Designer 3.0, $149 until Feb. 29; $199 thereafter.*

Key ◆◆◆◆◆ *Excellent* ◆◆◆◆ *Very good* ◆◆◆ *Good* ◆◆ *Fair* ◆ *Unsatisfactory*

Intuitive Big Business a little too big and slow

By Maria Langer

Big Software combines sales, inventory, finance and marketing tools in one program.

Small businesses looking for a way to manage their sales, marketing, inventory and finance needs may want to check out Big Business 1.0 from Big Software Inc., formerly Automatic Software Inc. The package, which has an estimated street price of $799 for two users, lets you centralize data, eliminate repetitive data entry and make information available companywide. It's a feature-rich program, but we're not convinced it's the "complete management system" touted by Big Software.

The program's interface is logical and intuitive: You work within cards to store information or enter transactions; you set up cards for your company, accounts, customers, vendors and inventory items by entering the data manually or by importing files from applications that produce tab-delimited text files.

All users have access to the same centralized database; security features, however, let an administrator limit access to specific functions and data.

Cards may include tabs for organizing information. The Vendor Card, for exam-

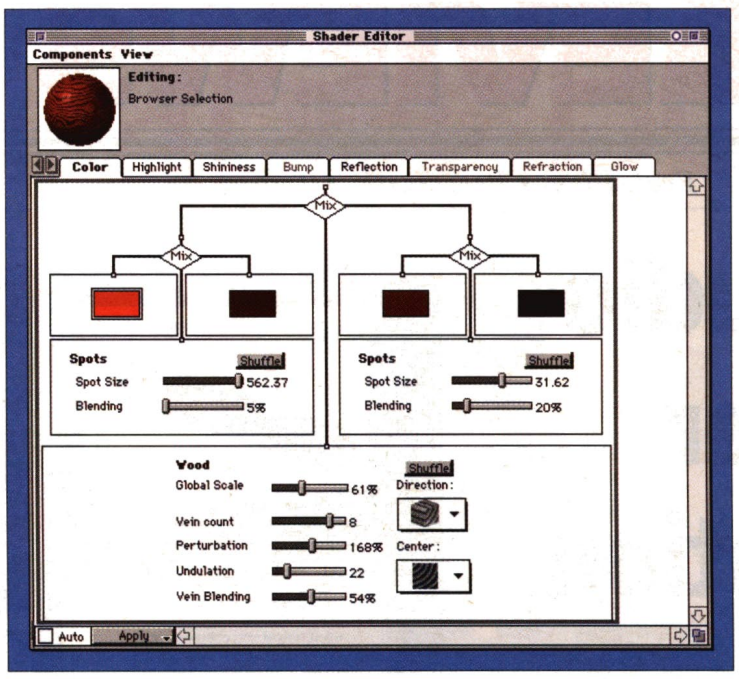
See Big Business, Page 69

Ray Dream

From previous page

the extra mile. Some details we especially like are optional floating palettes, excellent typographic control, the capability to view a scene from the light's point of view and text that appears in the specified typeface as you enter it.

Users who were expecting support for Apple's QuickDraw 3D technology, or at least 3DMF (3-D metafile format), will have to wait: Ray Dream plans to add support in the second quarter of 1996. That's too bad in the short term, especially since Designer's DXF (Drawing Interchange File) import is not robust. There's no RenderMan support either (though it's true that Pixar has halted RenderMan development on the Mac). However, files are binary-compatible with those from the Windows version of Ray Dream Studio and Corel Corp.'s Dream 3D.



The Shader Editor in Ray Dream Designer 4 can be a little daunting, but it offers a great deal of control. Designer 4 includes more than 350 shaders for those who don't want to create their own.

Animation

The biggest news in Studio is the animation extension. We were impressed by the maturity of this first release. A combination Time Line/Object Hierarchy window lists all objects in the scene, including lights and cameras. Clicking System 7-like triangles reveals the objects' properties, which can be independently animated — almost any attribute imaginable, including shaders, light intensity and camera focal length. Reminiscent of Macromedia Inc.'s Macromedia Three-D, this is one of the most powerful animation interfaces we've seen.

The single major omission is path editing. While you can apply some specific behaviors such as oscillate and bounce, you cannot directly edit the overall motion path by dragging key points; instead, you open each key frame and manually change the object's position — a serious drawback.

Realistic motion

Inverse kinematics (IK) imbues a sort of intelligence to chains of linked objects. You might constrain a hand to an anatomically correct range of motion, pull the hand beyond this range, and IK will cause the forearm to follow. This can help tremendously in generating realistic motion as well as realistically articulated still images.

After creating a hierarchical chain of objects, you assign constraints and apply the IK Behavior successively to each link. This process is reasonably straightforward but tedious. You have to call up the Object Transform dialog box, assign values (itself a multistep process), dismiss the dialog box, select the next object and so on. The motion-constraint controls suffer from a limitation found throughout the program: Many values are entered only by slider. We became frustrated dragging sliders back and forth as we kept overshooting the desired numbers — and some increments were simply unavailable. While precision isn't important for all properties, it can be for motion constraints.

Dream on

Previews are also problematic. When moving an object in Studio you get only a (sometimes unintelligible) bounding-box representation until the mouse button is released. This is a particular liability with IK, where you need to see how an object's motion is affecting the position of its Parents as you move it. QuickDraw 3D's real-time shaded previews could really help here.

Studio's implementation of IK is pretty rudimentary compared with that of industry leaders such as Alias Research Inc.'s PowerAnimator — or even of the few other IK-capable Mac programs, such as The Valis Group's Pixel Putty Solo. But it is useful and ups the ante for Mac 3-D animation programs.

Heavy in the airplane department, the Dream Models library tends otherwise toward the simplistic. We doubt that many of these models will be used as starring characters in a scene. If you need props and bit players, though, they can save you a lot of time. And since the models are essentially a free bonus, we're not complaining.

The Extensions Portfolio is an API for developing custom extensions, plus examples of some, complete with source code. Some are useful, but they're intended primarily as programming examples. We applaud Ray Dream for making its open architecture freely accessible and look forward to seeing what third-party extensions are introduced. Still, it's a little odd to give this feature equal billing with Designer and Animator — as if it would be of comparable interest to the bulk of Studio's users.

Documentation and support

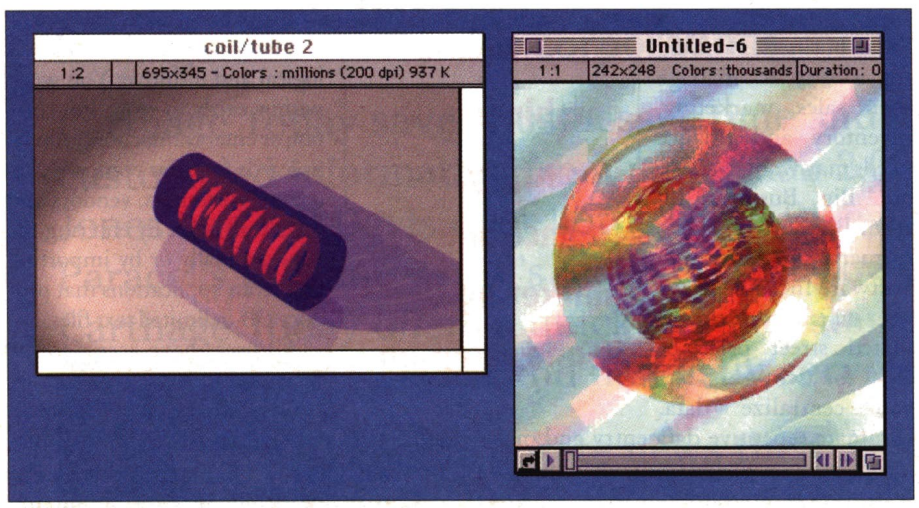
Ray Dream Studio ships only on CD (Designer 4 comes on floppies) and requires a color-capable Mac running System 7. Surprisingly, Studio doesn't use an FPU (floating-point unit).

Designer 3's skimpy user guide has been extensively rewritten and expanded and is now a model of clarity and simplicity. Additional documentation covers the other components of the package.

Conclusions

Ray Dream Studio is a well-rounded program with numerous great features and an exceptional price. The interface is much improved, and the new animation and inverse kinematics capabilities are very good. We look forward to QuickDraw 3D support, and we'd still like to see point-level and motion-path editing and improved performance: Those needing great precision or speed or organic shapes may be disappointed. Otherwise Studio should do fine. If you liked Ray Dream Designer 3, you will like Studio even better, and if you didn't — or never tried it — this is an excellent time to take a look.

Ray Dream Inc. of Mountain View, Calif., can be reached at (415) 960-0768 or (800) 846-0111; fax (415) 960-1198; info@raydream.com; http://www.raydream.com. □



New to Ray Dream Designer 4, one of the components of Ray Dream Studio, are a glow channel and color-enabled transparency and reflection channels, which allow for some very interesting effects.

IN BRIEF

Jabra for Macintosh

Telephony bundle has great hardware, poor software

Overall value ♦♦♦

Most people use the sound input on their Macintoshes only occasionally. However, if you use your Mac for telephony, PlainTalk speech recognition or voice annotation, you may find Jabra for Macintosh a useful tool.

When used in conjunction with an Apple GeoPort Telecom Adapter, this package from Jabra Corp. gives you the hardware and software you need for headset telephony. The $169 bundle includes the EarPhone, a mini microphone-and-speaker combination, and new DocTel Lite dialer software, which replaces the Power Dialer application that was bundled with the previous version (see 08.22.94, Page 37).

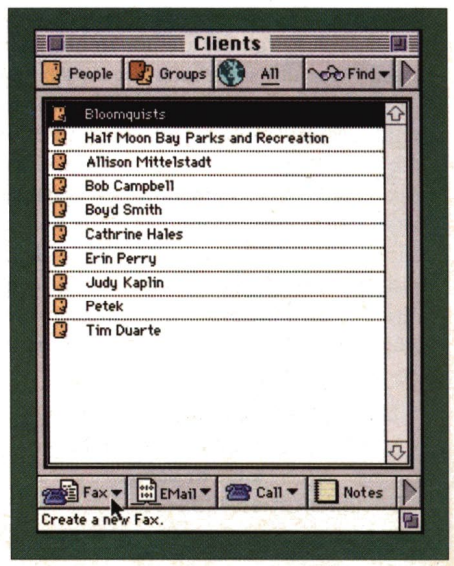
The EarPhone provides excellent sound quality for telephony and voice notes. The software is somewhat disappointing — certainly not as good as Power Dialer. To use the EarPhone for telephony, you need a GeoPort pod; this limits telephony functions to Quadra AV models and Power Macs.

In your ear

The EarPhone is a tiny speaker and microphone that fits in your ear. You connect it by wire to the microphone and speaker ports of your Mac. The mike, located on the part of the EarPhone that remains outside the ear, is well-oriented to pick up the speaker's voice. This setup is different from bone-conduction mikes, which pick up sounds inside the ear canal.

We found a dramatic improvement in sound quality when making a phone call with the EarPhone vs. using Apple's PlainTalk microphone and external speakers. Voice annotations also came out very clear. In our tests, the EarPhone also seemed

See Jabra, next page



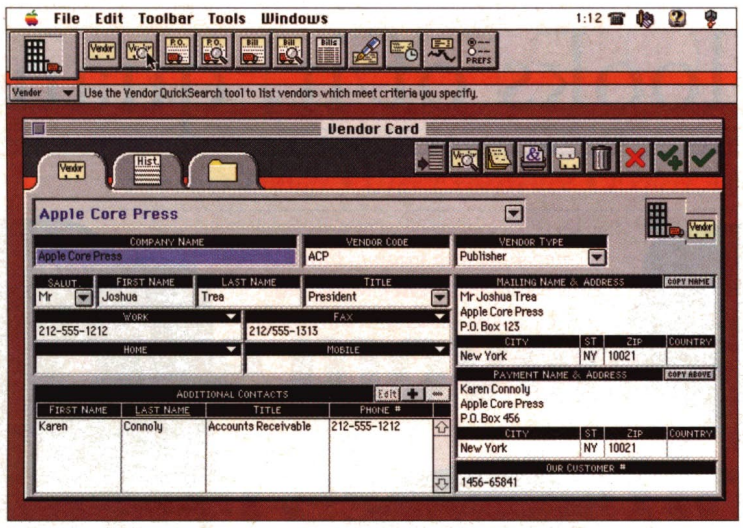
Ignore these buttons: DocTel Lite, the mini-PIM and phone dialer included with Jabra for Macintosh, doesn't include fax or e-mail.

Big Business

From Page 67

ple, includes three tabs: Vendor, for basic customer information; History, for transaction details; and Folder, for notes and miscellaneous information. The history is far from complete, however: It would be nice to see price quotes and purchase orders automatically included in customer or vendor history.

Tool bars display buttons for specific tasks. For example, the Vendor tool bar offers buttons to add, change or search for a vendor's card; create or search for a purchase order or bill; make or schedule payments; and print checks. You can customize the MyDesk tool bar to include any combination of buttons, eliminating the need to switch tool bars while working.



Use the Vendor Card in Big Software's Big Business to enter and retrieve contact information, order and payment history, or notes.

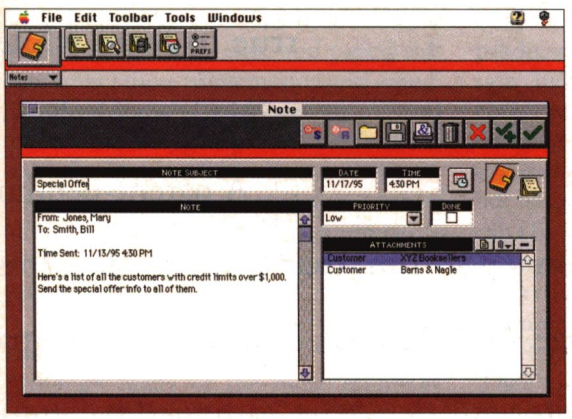
There's no business like Big Business

Big Business gives you complete control over customer data, including contact information, order and payment history and notes. Marketing people can search for customers that meet specific criteria; print, export or view lists; and create mailing labels. One standout feature allows salespeople to generate a quote for a customer, convert it to an order in the future or duplicate it for another customer.

Inventory needs are met through three Big Business features that go beyond the standards: multilevel pricing by cost or margin, item profitability, and automatic purchase orders based on reorder levels and minimum purchase amounts. Inventory is automatically reduced when invoices are generated and increased when bills for purchased items are recorded. The program can also create bundles that include two or more items.

Double-entry accounting is available, hidden behind simple forms — you click the Posting Information button on a form to see the entry behind it. A wide range of standard reports and charts can be customized with search criteria. One thing accountants might miss is the capability to produce recurring and reversing entries to handle monthly accruals.

We liked the Note feature, which lets you attach notes or externally created files (including QuickTime movies) to cards and send them to other users. Although dated notes can act as reminders for meetings or to-do items, Big Business does not include calendar or new-note-announcement features. You also won't find a way to generate form letters in Big Business; instead, you'll have to rely on the mail-merge capabilities of a word processor.



The Note feature within Big Business makes it possible to share information with other users by attaching messages or external files to Big Business windows.

We found the Q&A feature a helpful tool for tracking customer activity. It offers a menu of questions such as, "Which customers have not purchased in the last 60 days?" The program sorts through all Vendor Cards and displays the resulting list.

Big Business' features should satisfy the needs of most small-business personnel, with one large exception: payroll. We're baffled at the lack of such a common accounting software feature. According to the company, an add-on payroll module will be available sometime this year.

Slow business day

Big Business' server requires a 68040-based Macintosh or Power Mac and 16 Mbytes of RAM. The client requires an '040 Mac with 8 Mbytes of RAM or a Power Mac with 16 Mbytes of RAM. Both client and server need a chunky 40 Mbytes of disk space.

The program runs native on Power Macs, but its performance was not impressive. With the server installed on a Power Mac 8100/100 and the client on a 7100/66, it took more than 45 seconds to connect and log on, even with a small database and only one user connected at a time. Big Business then took anywhere from two to 10 seconds to display each window and 15 to 45 seconds to generate standard reports.

Our results were obtained with the preferred RAM settings: 20 Mbytes for the server and 12 Mbytes for the client; Big Software claims you can improve performance by allocating more RAM to the programs. Small businesses with an installed base of older Macs may find these hefty requirements hard to meet.

Conclusions

With the first incarnation of Big Business, Big Software has done a good job defining a new category of Mac business tools. Its centralized database approach is refreshing in a world where repetitive data entry is all too common. However, because of Big Business' sluggish performance, large RAM requirements and lack of payroll features, this program will not satisfy every small business' needs.

Other packages, such as Intuit Inc.'s QuickBooks Pro 4.0, may give Big Business a run for its money. Due to ship this month for an estimated street price of $189, QuickBooks Pro includes most of Big Business' accounting features — plus payroll capabilities. It's not a multi-user package and doesn't include all of Big Business' sales and marketing tools, but organizations more concerned with accounting might want to wait and see what Intuit has in store for them.

Big Software Inc. of Los Altos, Calif., is at (415) 919-0200 or (800) 970-0022; fax (415) 919-0205; http://www.bigbusiness.com. □

Jabra

From previous page

to improve the accuracy of PlainTalk voice-recognition software in noisy environments.

We'd like to see future EarPhone models get a longer cord; the current wire is too short if your Mac isn't located right next to your monitor. Since the Mac's microphone port uses an unusual plug, you can't add a regular audio extension cord.

The software

Any Mac telephony software must inevitably be compared to Cypress Research Inc.'s MegaPhone, a version of which is included with the GeoPort pod (see 05.22.95, Page 1). DocTel Lite, which provides a basic phone book and autodialer tool, simply doesn't measure up. The interface is confusing and contains many features that have been disabled for this Lite version. While Megaphone can import contact data directly from several personal information managers, DocTel Lite can import data only from a text file.

However, for $49 you can upgrade to DocTel Personal; this software leverages System 7.5's PowerTalk gateways and catalogs for fax and e-mail functions. We're not overly impressed with DocTel Personal either, but its capability to link any document to a specific contact or group might make it worthwhile for some.

Documentation and support

The EarPhone documentation — two brochures — is adequate, as installing the EarPhone is about as difficult as plugging in headphones on your Walkman. The DocTel Lite manual is included on disk.

Jabra technical support was friendly and courteous if not always correct in its diagnoses. Our first call for a common software-configuration problem ended with the representative telling us to return our supposedly defective EarPhone. The second operator we spoke to correctly diagnosed and solved the problem.

Conclusions

Jabra for Macintosh combines an innovative hardware product with so-so phone-dialer software. The EarPhone is excellent, offering much better sound quality for phone calls than using Apple's PlainTalk microphone and external speakers.

The company would do well, however, to bundle the full DocTel Personal with the EarPhone, as opposed to the stunted Lite version. Still, most users will find MegaPhone a better telephony application. Since it comes free with the GeoPort Telecom Adapter, and it works fine with the EarPhone, we recommend that you don't bother with DocTel Lite.

If you already own a GeoPort adapter and use your Mac for telephony, or if you make extensive use of PlainTalk voice recognition, you may want to consider Jabra for Macintosh, but only for its exceptional EarPhone.

DocTel Personal is also available as a stand-alone product for $99.

Jabra Corp. of San Diego is at (619) 622-0764 or (800) 327-2230; fax (619) 622-0353; info@jabra.com; http://www.jabra.com. — *By Frank Higgins*

score card

Big Business 1.0.2

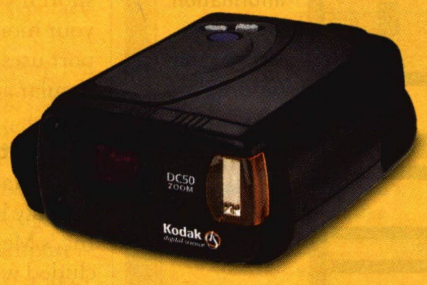
Big Software Inc.
Overall value ◆◆◆ **Estimated street price: $800***

Big Business is an easy-to-use integrated software package for the sales, marketing, inventory and finance needs of small businesses. It simplifies the flow of information through an organization by giving all employees access to the same data and tools. The result: Users spend less time duplicating effort and searching for information and spend more time being productive. The program is packed with features, offering functions from accounting, contact management and invoicing, but its lack of payroll keeps it from being a complete management system. We were disappointed in Big Business' multi-user performance, especially given its large RAM requirements.

Performance ◆◆ **Ease of use** ◆◆◆◆◆
Features ◆◆◆◆ **Documentation/support** ◆◆◆◆

**For two-user version; one user, $400; five-user version, $1,300; 10-user version, $2,000. Additional user licenses, $200 each.*

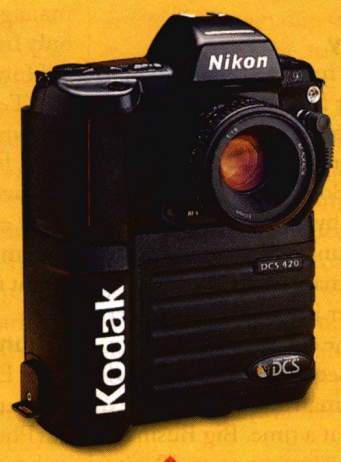
We offer unsurpassed digital image quality. (And by the looks of it, quantity too.)



The DC50 zoom camera is our newest point-and-shoot. It comes with three levels of image resolution, and a 3:1 zoom lens. PCMCIA-ATA compatible card optional.

The DCS 465 digital camera back is compatible with medium format cameras (HASSELBLAD, MAMIYA) and 4 x 5 view cameras. It offers 6 million pixel resolution, and works with professional flash systems.

The DCS 460 digital camera offers 6 million pixel resolution, and a high sensitivity for shadow and detail. Our premier digital camera.



The DCS 420 digital camera sports 1.5 million pixel resolution, and an initial continuous burst rate of 5 images in 2.25 seconds. The perfect NIKON camera partner.

The EOS-DCS 5 digital camera works seamlessly with CANON auto focus lenses, offers 1.5 million pixel resolution, and a continuous burst rate of 10 images in just over 4 seconds.

The DC40 camera offers a choice of snapshot and high-resolution pictures, 380,000 pixel images, 24-bit color, and a focus-free lens. Our most affordable digital camera.

Kodak didn't start out with this many digital cameras. We started out with one. The first megapixel digital camera ever built, in 1986.

Since then, we've made cameras for NASA, for professional photographers, for medical professionals, desktop publishers, and business people. And as we've created cameras to meet different needs, our digital camera family has grown.

While *Kodak Digital Science*™ cameras vary from high-end to point-and-shoot, what they share are the very things that make them *Kodak* cameras. A commitment to preserve image quality through every stage of the digital process. And the technology to make it so.

Technology including a sensor designed for computer images, not video output, that captures fine detail. A color filter array pattern that holds images true to form while minimizing pixellation.

A patent-pending compression algorithm, that prevents data loss during storage. And of course, Kodak's color expertise, responsible for our rich, true, saturated palette.

Together, this technology captures and protects images like no other single-shot digital camera, resulting in unsurpassed picture quality that you can only get from Kodak.

To find out more about our full line of *Kodak Digital Science* cameras, call 1-800-322-2177 ext. 602 in the U.S., 1-800-465-6325 ext. 36100 in Canada. Or visit us on the World Wide Web at http://www.kodak.com/

Kodak ds digital science™

It's how you put pictures to work.™

© Eastman Kodak Company, 1996. Kodak, Digital Science and the ds monogram symbol are trademarks of Eastman Kodak Company.

PRESENTATION SOFTWARE

Businesses see movement in corporate presentations

By Cliff Lehman

Accessible presentation software continues to foster the creation of everything from simple black-and-white paper-based presentations to on-screen interactive multimedia for CD-ROM distribution.

Even though companies are downsizing, they still need formal business presentations.

Ease of use has become even more important because the downsizing of companies in the past few years has resulted in the jettisoning of many corporate art departments. Nothing, however, has diminished the corporate need for polished presentations delivered in prompt, professional fashion.

Static presentations of all kinds (screen, transparency, 35mm slide and paper) still outnumber those using motion and sound. But presentations with movement and sound are the biggest growth area and account for between 30 percent and 40 percent of corporate presentations, according to Bruce Ryon, director of multimedia worldwide at Dataquest Inc., a market research firm in San Jose, Calif.

The elite

Although many of the more mundane business presentations are now ably produced by those who give them, when it comes time for the annual stockholders' meeting or an industry conference, where image is important, most companies turn to the professionals.

The highest level of presentations are crossovers into the realm of commercial CD-ROM titles. And the best of these are made with full-featured authoring tools, such as Director from Macromedia Inc. of San Francisco.

Darryl Gordon, dean and computer education supervisor at the Advertising Arts College in San Diego, recently used Director to create a presentation on CD-ROM for the San Diego Padres professional baseball team.

"It's a huge 120-Mbyte presentation that will be part of a corporate presentation," he said. "I couldn't use Persuasion to produce it." Gordon uses Adobe Persuasion for his classroom and workshop-circuit presentations and Director when he designs for clients. "Persuasion isn't a producer of games and high-end multimedia, but for everyday business presentations, it can't be beat."

You don't, however, need a program as powerful as Director to create high-quality multimedia presentations.

Fred Connors Jr., general manager of TheTroupe, a media design and production company in Windham, N.H., said his company uses Special Delivery from Los Altos, Calif.-based Interactive Media Corp. as well as Director to produce multimedia presentations for clients. However, his criterion for choosing one or the other is not quality of production.

"We use Special Delivery because it's very fast," Connors said. "If the presentation is for Mac-only distribution or for a kiosk where we control the platform, we use Special Delivery. If it's widely distributed or cross-platform, we use Macromedia Director."

TheTroupe, according to Connors, has begun designing and creating multimedia pieces as well as producing corporate videos. The company uses Director for 60 percent and Special Delivery for 40 percent of the presentations it produces for clients.

"Sometimes we prototype in Special Delivery because it's nice for bringing something up quick and easy," Connors said. "It's intuitive. You link functions by just drawing an arrow; it's not as scripted as Director."

The company serves mostly corporate clients in the high-technology, medical and financial industries. TheTroupe has just changed its name from The Video Troupe, "because our biggest growth is in interactive pieces, so we didn't want to be associated with just video production," Connors said. "Now when we do a video we are doing a CD as well for a client as part of the same project."

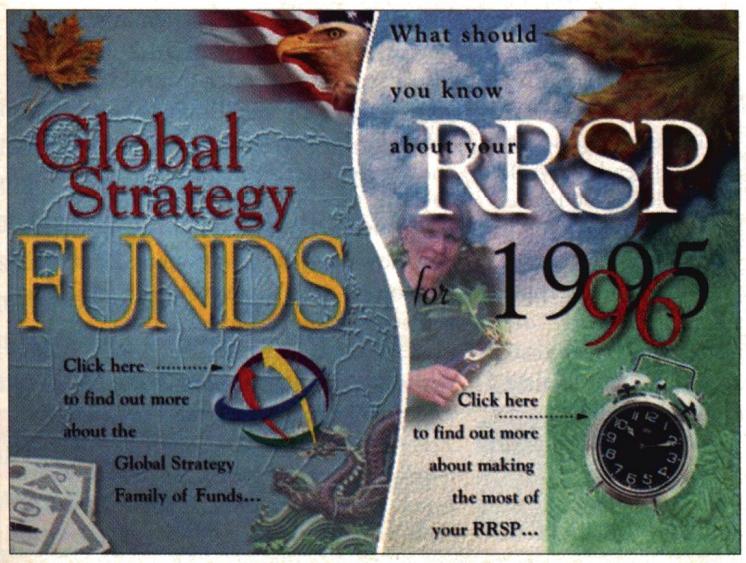
Road warriors

Elliott Smith helps to automate his company's sales force. As the creative director at Global Strategy Investment Funds, a mutual-fund company in Toronto, Smith uses Astound! from Gold Disk Inc. of Santa Clara, Calif., to produce mobile multimedia presentations.

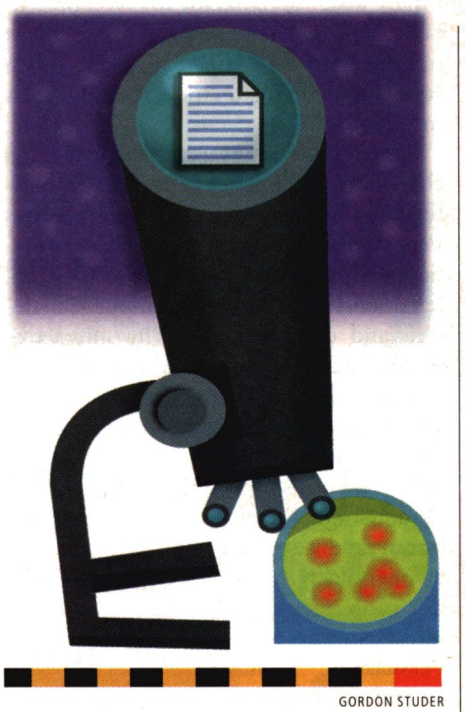
"We are entirely Mac-based and we like technology," Smith said. "We want to provide an exciting way to present information while keeping it timely. Traditionally, if you want to do multimedia you use Director. But by the time you can produce it in Director, the story is over. Astound! allows us to quickly put together an animated presentation. You can put something together with Astound! in a week that you can't possibly do in Director.

"We turn it into a self-playing presentation that the road warriors can just double-click and then click through the presentation for clients," Smith said. "Our sales people put it on PowerBooks and go out with really

See Solutions, next page


What should you know about your
Global Strategy FUNDS
RRSP for 1996
Click here to find out more about the Global Strategy Family of Funds...
Click here to find out more about making the most of your RRSP...

Using Astound! from Gold Disk, Elliott Smith, creative director at Global Strategy Investment Funds, created multimedia presentations for the Toronto-based mutual-fund company's traveling sales force.



GORDON STUDER

MACINTOUCH

RIC FORD

Watch for macro viruses; beware mail's blind CCs

When a reader inquired recently about yet another Macintosh mystery, the symptoms were not immediately familiar. Jeff Goodman's system, running Microsoft Word, was saving files as template documents instead of saving them as normal Word documents. The culprit eventually came to light, with the help of Microsoft Corp., and its symptoms are ones Word 6 users should note. They were caused by a Word 6 "macro virus," a cross-platform bug created in Word Basic and stored in Word's global template file (see 08.28.95, Page 1).

There are now at least two Word macro viruses, known by names such as Prank, Concept and Nuclear. (Nuclear contains an additional viral payload to execute on Intel-based systems.)

Fortunately, various organizations are helping people track and respond to these problems using the Internet in the process. Microsoft offers information at http://www.microsoft.com/msoffice/freestuf/msword/download/mvtool/mvtool2.htm and via e-mail to wordinfo@microsoft.com. Mac Word customers also can call (206) 635-7200.

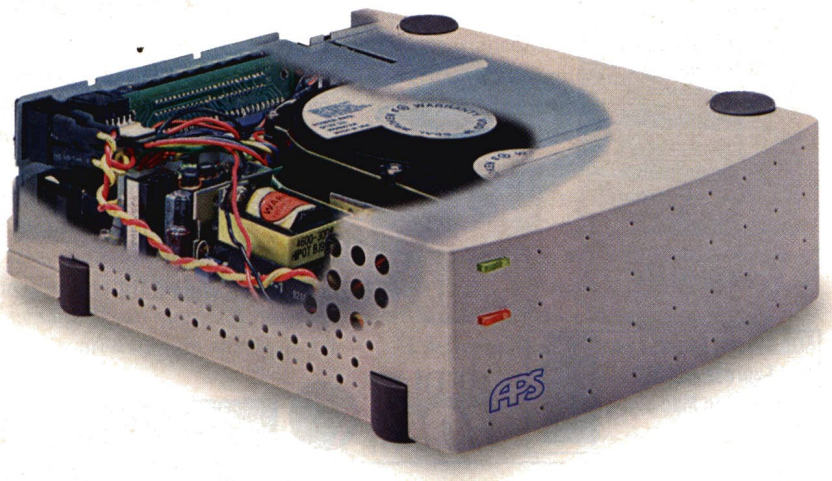
The Mac file http://www.microsoft.com

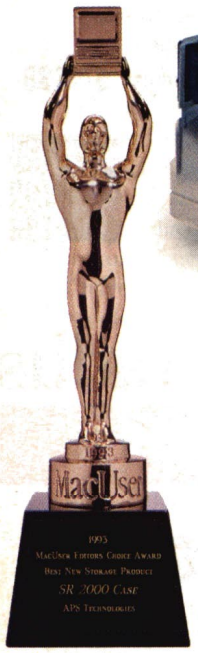
See MacInTouch, next page

APS...GREAT PRODUCTS.

1GB FOR ONLY $269.95

Internal configuration





"In the fiercely competitive world of the humble desktop hard drive, nobody sweats the details more than APS. Elegant design, quality components, and rock-solid construction distinguish the compact APS SR 2000 case." –Editors of MacUser

OVER 4GB OF STORAGE

APS ST 4200

Seagate

- ✔ Excellent combination of capacity, reliability and value
- ✔ Terrific with page layout and graphics files
- ✔ 512K cache buffer helps boost transfer rates
- ✔ 5-year warranty

MacUser ZD LABS

$949.95 *Internal configuration*

APS Q 1080

Quantum

- ✔ Well suited for home and office use
- ✔ Embedded servo, great for AV and non-AV applications
- ✔ PRML technology delivers more storage to powerful CPUs & applications
- ✔ Meets the highest standards for quality and reliability
- ✔ 3-year warranty

MacWEEK · MacUser ZD LABS

For an incredible value in 1GB drives, look no further than the APS Q 1080. It is the value champ in high-capacity drives. This drive gives you over a gigabyte of capacity and read/write performance that makes it a natural for any application. It is backed by a three-year warranty and supports a 500,000 hour MTBF. If you're ready to take a step forward in drive capacity and performance, the APS Q 1080 makes that step an easy one to take.

ADD 491MB OF POWERBOOK CAPACITY

APS Q 514

Quantum

- ✔ Well suited to handle the spreadsheets and presentations you need on the road
- ✔ Low power requirements for long battery use
- ✔ 4500 rpm spindle speed
- ✔ 1-year warranty

$199.95 *Internal configuration*

APS SCSI DRIVES

Model	Capacity/Features	Awards	Internal	SR2000
APS Q 840[3] Quantum 840 Trailblazer	**811MB** 4500 rpm	MacUser ZD LABS ★★★★	$199.95	$299.95
APS I 1080[3] IBM DPES 31080	**1034MB** 5400 rpm		239.95 NEW FROM APS	339.95
APS Q 1080[3] Quantum 1080 Fireball	**1042MB** 5400 rpm	◆◆◆◆ MacWEEK · MacUser ZD LABS ★★★★	269.95	349.95
APS Q 2210[5] Quantum Capella VP32210	**2103MB** 5400 rpm	MacUser ZD LABS ★★★½	629.95	699.95
APS ST 4200[5] Seagate ST 15230N Hawk	**4094MB** 5400 rpm	MacUser ZD LABS ★★★★	949.95	1049.95

APS HIGH-PERFORMANCE SCSI DRIVES

Model	Capacity/Features	Awards	Internal	SR2000
APS MS 2.0[5] Micropolis 4221	**1955MB** 7200 rpm	MacUser ZD LABS ★★★½	$699.95	$799.95
APS Q 2.0[5] Quantum Atlas XP32150	**2050MB** 7200 rpm	MacUser ZD LABS ★★★★	799.95	899.95
APS ST 2.0[5] Seagate ST 32550N Barracuda	**2047MB** 7200 rpm		799.95	899.95
APS MS 2.0AV[5] Micropolis 4221AV	**1955MB** 7200 rpm		799.95	899.95
APS MS 4.0[5] Micropolis 3243	**4064MB** 7200 rpm	MacUser ZD LABS ★★★★	1099.95	1199.95
APS MS 4.0AV[5] Micropolis 3243AV	**4064MB** 7200 rpm		1199.95	1299.95
APS Q 4.0[5] Quantum Atlas XP34300	**4101MB** 7200 rpm	◆◆◆◆ MacWEEK · MacUser ZD LABS ★★★★½	1199.95	1299.95
APS ST 4.0[5] Seagate ST 15150N	**4094MB** 7200 rpm	MacUser ZD LABS ★★★½	1299.95	1399.95
APS MS 9.0[5] Micropolis 1991	**8669MB** 5400 rpm		2199.95	*2399.95
APS ST 9.0[5] Seagate ST410800N	**8669MB** 5400 rpm		2199.95	*2399.95
APS MS9.0AV[5] Micropolis 1991AV	**8669MB** 5400 rpm	MacUser ZD LABS ★★★★	2299.95	*2499.95

APS FAST/WIDE SCSI DRIVES

Model	Capacity/Features	Awards	Internal	SR2000
APS MS 2.0W[5] Micropolis 4221W	**1955MB** 7200 rpm		$799.95	$899.95
APS Q 2.0W[5] Quantum Atlas XP32150W	**2050MB** 7200 rpm		899.95	999.95
APS MS 4.0W[5] Micropolis 3243W	**4064MB** 7200 rpm		1199.95	1299.95
APS Q 4.0W[5] Quantum Atlas XP34300W	**4101MB** 7200 rpm		1299.95	1399.95

APS POWERBOOK DRIVES

Model	Capacity/Features	Awards	Internal	SR1000
APS 170 PB[1] Avatar mechanism	**170MB**** Each cartridge only $49.95		$399.95	N/A
APS Q 514[1] Quantum Daytona	**491MB** 4500 rpm, SCSI drive	*while supplies last!*	199.95	N/A
APS Q 810[3] Quantum Europa	**778MB** 3800 rpm, Fast ATA-2 (IDE)		399.95	N/A
APS Q 1.08[3] Quantum Europa	**1037MB** 3800 rpm, Fast ATA-2 (IDE)		499.95	N/A

***170MB per removable cartridge*

APS ADAPTER & ACCELERATOR CARDS

Model	External SCSI Connection	Price
QLogic Fast! SCSI MAC PCI-N Increases the SCSI performance of your PCI Power Mac	HD 50-pin	$299.95
QLogic Fast! SCSI MAC PCI-W For Fast/Wide drives	HD 68-pin	379.95
Silicon Express II For NuBus Quadras & Power Macs only. Fast SCSI-2 accelerator card	DB25 connection	499.95
Silicon Express IV For NuBus Quadras & Power Macs only. Fast/Wide accelerator card & adapter	HD 68-pin	849.95

To receive an automated fax listing of all APS documents, call 800-374-5802 from any touch-tone telephone

Then call 816-920-4150 from a fax machine with a handset or fax modem and follow the instructions.

World Class Winner Macworld · MW ★★★★ · Macworld World Class Award Winner 1993 · MacUser Recommends · MacUser ZD LABS · MacUser Editors' Choice Award Winner 1993 · MW Editors' Choice · Macworld MW Service Hero · Best Technical Support 1994 · BMUG Fall 1994 Choice Product · 1994 Mac Home Journal Readers' Choice · Mac Home Journal Award · Windows Magazine 1995 Win 100 · ◆◆◆◆ MacWEEK

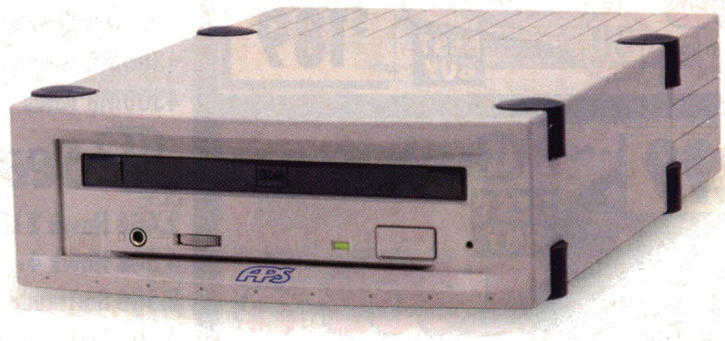
APS TECHNOLOGIES

PRICELESS SUPPORT!

Call us 24 hours a day, 7 days a week

ONLY APS OFFERS YOU:

- 30-day, no-hassle money-back guarantee, with no restocking fee
- All our SCSI hard drives come with PowerMerge® LE
- Patented, Digital Active Termination™
- Toll FREE support
- Rapid repair turnaround
- Factory Direct Quality
- Factory Direct Service
- Factory Direct Value



GREAT VALUE ON SYQUEST!!

$349.95* *External configuration*

*When you purchase 5 - SQ2000 cartridges from APS

MacUser ZD LABS ★★★★

$399.95 *External configuration*

APS SQ 3270

- ✔ Great for your desktop or laptop computer – uses 105MB and 270MB cartridges
- ✔ 2-year warranty

The APS SQ 3270 Packs an incredible 255MB onto a 3.5" SyQuest cartridge. This drive is a high-performance, storage winner with sustained transfer rates above 1.7MB per second and average seek times as low as 12.2 ms. It is the first removable cartridge drive that delivers performance comparable (or superior) to many standard hard disk drives!

While Supplies Last!

MacUser ZD LABS ★★★★½

APS SQ 5200

- ✔ Easy & convenient to transfer files to & from your service bureau for output
- ✔ Uses 44, 88 & 200MB cartridges

MacUser RECOMMENDS

Since your graphics files come in a wide range of sizes, it makes sense to have a removable cartridge drive that will accommodate a variety of cartridge capacities. The APS SQ 5200 delivers the diverse media sizes that you need. It will read, write and format 44MB, 88MB and 200MB cartridges.

APS CD-R

- ✔ Keep your important data safe and secure on CD media with a 100-year shelf life
- ✔ Random access gives you fast retrieval of your critical information
- ✔ Includes a copy of TOAST CD-ROM Pro CD-Recording software – a $500 value!
- ✔ Media cost of less than 2¢ per MB
- ✔ 1-year warranty

Now you can record and play CDs on the same device with the new APS CD-R. This double-speed recordable CD system and CD-ROM player is perfect for authoring, mastering and playing multimedia and audio CDs. It is also the ideal backup drive. The 650MB CD-R media costs less than 2¢ per MB and has a 100-year shelf life. And by using random access, this drive lets you retrieve your important data much more quickly than backups recorded on tape. The APS CD-R has a generous 1MB cache buffer and supports all popular CD formats. It also supports all recording methods specified in the Orange Book Part II. The APS CD-R comes with the cables, caddy and manuals you'll need, plus a FREE copy of the award-winning TOAST CD-ROM Pro CD-Recording software.

RECORDABLE CD-ROM!

NOW ONLY $999.95

External configuration

APS SYQUEST DRIVES

Model	Capacity/Feature	Awards	Internal	SR2000
APS SQ 5200[2] Ultimate storage flexibility	194MB	MacUser ZD LABS ★★★★½ MacUser RECOMMENDS	$339.95*	$389.95*
APS SQ 3270[2] Our best performing removable cartridge drive	255MB	MacUser ZD LABS ★★★★	349.95*	399.95*
EZ135[2] An affordable alternative to a new hard drive...from SyQuest	135MB		N/A	229.95*

*While supplies last! Offer expires January 22, 1996! CALL NOW!

APS CD-ROM DRIVES

Model	Features	Awards	Internal	SR2000
APS T 3701[1] Sustained data transfer rates up to 1000KB per second	6.7X-SPEED		$399.95	$449.95
APS PD4[1] 600MB optical storage with 4X CD-ROM in one device	CD/MO Combo		N/A	599.95
APS CD-R[1] With FREE TOAST CD-ROM Pro CD-Recording software ($500 value)	Recordable CD-ROM		N/A	999.95*

*While supplies last! Offer expires January 22, 1996! CALL NOW!

APS MO DRIVES

Model	Awards	SR2000
APS 230MB MO[2] Increased performance with 4500 rpm drive	MacUser ZD LABS ★★★★	$499.95
APS 1.3GB MO[1] A 4MB cache improves performance		1699.95

APS QIC & DAT TAPE BACKUP DRIVES

Model	Capacity*/Features	Awards	Internal	SR2000
APS HyperQIC™[2] QIC 3080 Mechanism	2GB•	MacWEEK ★★★★ MacUser LABS ★★★½	N/A	$499.95
APS ProDAT[2] DDS-2 Non-Compression Mechanism	4GB•		$749.95	799.95
APS HyperDAT[2] DDS-2 Compression Mechanism	8GB†		949.95	999.95
APS DATLoader600[2] Ideal for unattended large network backups	48GB††		N/A	*2499.95

APS DLT TAPE BACKUP DRIVES

Model	Capacity*/Features	Awards	Internal	SR2000
APS DLT30[2] Digital Linear Tape Mechanism	30GB†	MacUser EDITORS' CHOICE AWARD 1995 FINALIST	N/A	*$4499.95
APS DLT40[2] Digital Linear Tape Mechanism	40GB†		N/A	*5999.95

Actual data compression and tape capacity vary greatly depending on the type of data recorded, other system parameters and environment.

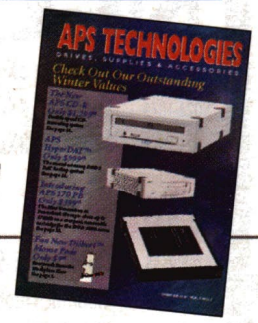
All APS tape drives include Retrospect® by Dantz®

GET 3 SONY 90m DAT TAPES & 1 SONY CLEANING CARTRIDGE — SAVE 28%

ONLY! $29.95 WITH PURCHASE OF AN APS DRIVE

Offer expires January 22, 1996.

CALL FOR YOUR FREE 1996 WINTER CATALOG
FEATURING OUR COMPLETE LINE OF APS DRIVES, SUPPLIES & ACCESSORIES



- 30-day money-back guarantee (excluding opened software). Your risk is the cost of shipping.
- Drive-for-Drive Repair or Replacement Warranty. The warranty length is denoted by the superscripted number next to each drive model. APS will, at its discretion, replace or repair products found to be defective according to the terms of the product's warranty.
- Refused orders subject to restocking fee.
- [1-5] Denotes length of manufacturer's warranty in years
- Internal hard drives include brackets, cables, cords and LEDs required for operation with the specified Macintosh where applicable. Internal drives for Quadra 800 and Centris 610 available.
- Listed capacities are formatted
- External SCSI-2 drives come with a premium SCSI cable, power cord and user guide.
- • External enclosure is special Full Height only
- All hard drives from APS Technologies come preformatted with Apple's System 7.0.1 software, and APS Technologies' APS PowerTools SCSI formatter/hard disk partitioner.
- † 2:1 Hardware data compression.
- †† Using six 120 meter DAT tapes with hardware data compression.
- ‡Native capacity without data compression.
- International customers must pay for all shipping charges.
- Toll-free Technical Support as needed. Regular hours are 8 am to 8 pm Monday thru Friday, 9 am to 5 pm Saturday, Central Time.
- Patented DATerm™ Digital Active Termination™ technology.
- Prices and specifications are subject to change without notice. Not responsible for typographical errors.
- Copyright © 1996 APS Technologies

VISA MasterCard DISCOVER NOVUS AMERICAN EXPRESS TeleCheck

Visit our Web Page at http://www.apstech.com/

CALL TODAY!

800-677-3294

REF. CODE: 307004

APS Technologies

1-800-258-2622 CLUBMAC 1-800-258-2622 CLUBMAC 1-800-258-2622

$269

Quantum LIGHTNING 730MB

Internal Fireball C109 1202

FIREBALL 1GB

12ms Access Time 5400RPM

11ms Access Time - 4500RPM

Internal Lightning C109 1154

BEST BUY

$189

$999

Quantum GRANDPRIX 4.3GB 7200 RPM

BEST BUY

MacUser October 1995

Internal Grand Prix C109 1159

$369*

ClubMac 200MB Removable

FEATURING SyQuest REMOVABLE TECHNOLOGY

200MB

C109 1222

*Cartridge sold separately.

$234.95

SyQuest® EZ135 Drive

FEATURING SyQuest REMOVABLE TECHNOLOGY

S198 2001

IN STOCK

Features:
SCSI Interface
13.5ms Access Time
One Free Cartridge
TWO Year Warranty

135MB

$339

N024 1070

NEC

MultiSpin 4Xc
7 Disc-Changer
Load 7 Discs at a time!

$1299

0066 1003

OLYMPUS
OLYMPUS IMAGE SYSTEMS, INC.

DELTIS CD-R2
2X CD Recordable

Features:
1MB Buffer
Gear Software
ONE Year Warranty

Source Code 651226

ClubMac®

1-800-258-2622

CLUBMAC HARD DRIVES

Quantum

		Internal/External	Internal/External
730MB Lightning	BEST BUY	C109 1154/C109 1102	$189/$249
850MB TrailBlazer		C109 1206/C109 1207	$219/$279
1080MB Fireball		C109 1202/C109 1203	$269/$329
2200MB Capella		C109 1213/C109 1212	$669/$729
4300MB Grand Prix	BEST BUY	C109 1159/C109 1108	$999/$1059
4300MB Atlas		C109 1122/C109 1021	$1229/$1289

Seagate

2.4GB Hawk 2 LP 32430N	C109 2211/C109 2112	$739/$799
4.3GB Hawk 4 15230N	C109 2212/C109 2113	$999/$1059
2.5GB Barracuda 2 LP 32550N	C109 2203/C109 2109	$889/$949
4.3GB Barracuda 4 15150N	C109 2207/C109 2106	$1379/$1479
5.25" Full Height		
9.1GB Elite-9 410800N	S020 1014/C109 2110	$2299/$2399

CLUBMAC 2.5" DRIVES

Quantum

341MB Daytona	BEST BUY C109 1020/C109 1119	$179/$299
514MB Daytona	C109 1021/C109 1109	$249/$369
810MB Europa IDE	C109 1022	$429 Internal
1080MB Europa IDE	C109 1023	$499 Internal

CLUBMAC FAST AND WIDE DRIVES

Seagate

		Internal/External	Internal/External
2.1GB Barracuda	2LP ST32150W	C109 2214/C109 2215	$959/$1059
4.3GB Barracuda	4 ST15150W	C109 2206/C109 2208	$1399/$1499
9.1GB Elite 9	ST410800W	C109 2220/C109 2222	$2379/$2499

Quantum

2.2GB Capella	VP32210SW	C109 2219/C109 2217	$699/$799
4.3GB Grand Prix	XP34301SW	C109 2216/C109 2218	$1029/$1129

Fast and Wide Controllers

Adaptec

A024 1006	PowerDomain AHA 2940W SCSI Accelerator	$299
A029 1001	Adaptec Remus 1.3 (Raid Levels 1, 4, 5)	$439

FWB incorporated

F094 1033	SCSI JackHammer PCI	$389
F094 1002	SCSI JackHammer NuBus	$459

QLogic

Q010 1008	Fast!SCSI MAC PCI-N for Fast SCSI-2 (10 MB/sec) connectivity	$229
Q010 1009	Fast!SCSI MAC PCI-W for Fast/Wide SCSI (20 MB/sec) connectivity	$295
Q010 1010	Fast!SCSI MAC PCI-D for Fast/Wide SCSI where longer I/O cables required	$449

CD-ROM READERS

NEC

		Access time	Trans Rate	
N024 1062	MultiSpin 6Xe CD-ROM Reader	150ms	900k/sec.	$479
N024 1070	MultiSpin 4Xc 7 Disc Changer	350ms	600k/sec.	$339
N024 1011	MultiSpin 3Xp plus CD-ROM Reader	240ms	500k/sec.	$379

ClubMac

		Access time	Trans Rate	
C109 9555	ClubMac Six-Speed CD-ROM Drive	145ms	900k/sec.	$369
C109 9546	ClubMac Quad-Speed CD-ROM Drive	140ms	600k/sec.	$199
C109 9700	ClubMac Nakamichi 2X 7 CD-Changer	380ms	300k/sec.	$149
C109 9550	ClubMac Dual-Speed CD-ROM Drive	350ms	300k/sec.	$88.88

REMOVABLE DRIVES

ClubMac

C109 1222	ClubMac 200MB 5.25" Removable*	$369
C109 1221	ClubMac 88MB 5.25" Removable* BEST BUY	$199
C109 1224	ClubMac 270MB 3.5" Removable*	$375
C109 1223	ClubMac 105MB 3.5" Removable	$149
S198 2001	SyQuest EZ135 135MB 3.5" Removable	$234.95

*Cartridge not included

SyQuest Media

Part Number	Media	Qty 1	Qty 10	Qty 20
S198 1010	44MB	$42ea	$41ea	$40ea
S198 1011	88MB	$47ea	$46ea	$45ea
S198 1012	200MB	$75ea	$73ea	$71ea
S198 1013	105MB	$35ea	$34.50ea	$34ea
S198 1014	270MB	$60ea	$59ea	$58ea
S198 2010	EZ135MB	$19.99ea	$19ea	$18.50ea

iomega

I044 1010	Zip Drive with One 100MB Cartridge	$199.99
I040 1006	Zip Cartridge (100MB)	$19.99
I040 1011	Zip Cartridge (3 pack)	$49.95

TAPE BACKUP

ClubMac

Shipped with Retrospect 3.0

C109 5039	ClubMac 2.0GB ThunderDAT Drive	$749
C109 5000	ClubMac 4-8GB DDS-2 DAT Drive	$899
C109 4301	ClubMac 4-8GB DDS-2 SuperDAT Drive	$1199
C109 2042	ClubMac 2-4GB SCSI MiniCartridge Drive	$499
S100 1043	Sony QW3080XLF QIC/WIDE 2-4GB Cartridge	$29
C109 1236	ClubMac 40GB DLT Subsystem DLT 4000	$5799
Q034 1021	1/2 inch media for DLT 2000	$39
Q034 1022	1/2 inch media for DLT 4000	$99

OPTICAL DRIVES

ClubMac

C109 5022	ClubMac 5.25" Olympus 1.3GB Optical	$1399
C109 5020	ClubMac 3.5" Olympus 230MB Optical	$459

'TORAY' Optical Storage Solutions

T140 1001	TORAY Phasewriter DUAL™ PD CD/650MB Optical	$649
T140 2001	TORAY PDM-650 Media (ZCAV 650MB)	$59

PINNACLE MICRO THE OPTICAL STORAGE COMPANY

P074 1005	Apex 4.6GB Optical w/One Cartridge	$1589
P074 1006	Apex 4.6GB 1024K Media	$189

CD RECORDABLE DRIVES

MICROBOARDS of AMERICA

M274 1001	PlayWrite 2X 2000 CDR w/Gear Standard	$1245
M274 1002	PlayWrite 2X 2000 CDR w/Gear Multimedia	$1289
M274 1003	PlayWrite 4X 4000 CDR w/Gear Standard	$2599
M274 1004	PlayWrite 4X 4000 CDR w/Gear Multimedia	$2689

YAMAHA®

Y010 1002	Yamaha 4X CD Recorder w/Toast CD Mastering software	$2799

PINNACLE MICRO THE OPTICAL STORAGE COMPANY

P074 1001	RCD-1000 Recordable CD System w/ Toast software	$1429
P074 1008	RCD-5020 Recordable CD System w/ Pinnacle software	$1249

OLYMPUS OLYMPUS IMAGE SYSTEMS, INC.

0066 1003	DELTIS CD-R2 2X CD Recordable w/Gear software	$1299

7 Hammond, Irvine CA 92718

DISCOVER NOVUS VISA MasterCard AMERICAN EXPRESS Cards

NO SURCHARGE!

- ClubMac hard drives include all cables, cords, leds, and brackets necessary for use with the Macintosh you specify. ClubMac formats all hard drives and installs Apple System 7.1 software, Charismac Anubis Driver, and PowerMerge LE.
- External drives include a Double Shielded, twisted pair 25-50 SCSI cable.
- ClubMac honors all original equipment manufacturers warranties. ClubMac will repair or replace drives at it's discretion. Drives returned within first 30 days of purchase are replaced with a new unit.
- All ClubMac hard drives include a 30 day money back guarantee. Your risk is the cost of shipping.

WARRANTIES: All items manufactured by ClubMac are returned to ClubMac for warranty repair. All other items carry manufacturer's warranty. MONEY BACK GUARANTEE: All products manufactured by ClubMac carry a 30 day money back guarantee. ClubMac extends all other manufacturers' return policies to its customers. Non-ClubMac products carry 30 day money back guarantee when specified. RETURNS: Call for RMA number! Any product that is returned WITHOUT an RMA number will be refused. ALL PRODUCT INFORMATION AND PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE. NOT RESPONSIBLE FOR TYPOGRAPHICAL ERRORS.

Call Toll Free 1-800-258-2622 for a FREE Subscription to the ClubMac Catalog!

24 HOURS A DAY — NOW OPEN — 7 DAYS A WEEK

Authorized Catalog Reseller

MONITORS

radius

R016 1014	Radius SuperMac SuperMatch 17XL Display	$689
R016 1030	Radius PrecisionView 17 Display	$979
R016 1031	Radius PressView 17•SR Display System	$1999
R016 1009	Radius Intellicolor Display/20e	$1995
R016 1033	Radius MultiView 21 Display	$1799
R016 1032	Radius PrecisionView 21Display	$2299
R016 1034	Radius PressView 21•SR Display System	$3149

NEC

N026 1015	NEC 15" MultiSync XV15+	$449
N026 1022	NEC 17" MultiSync XV17+	$799
N026 1009	NEC 17" MultiSync XP17	$1049
N026 1010	NEC 21" MultiSync XE21	$1779
N026 1011	NEC 21" MultiSync XP21	$2159

SONY.

S106 1021	Sony Multiscan Trinitron 15SX-1	$460
S106 1017	Sony Multiscan Trinitron 15SF-2	$519
S106 1018	Sony Multiscan Trinitron 17SF-2	$915
S106 1019	Sony Multiscan Trinitron 17SE-2T	$1099
S106 1020	Sony Multiscan Trinitron 20SF-2	$1855

Portrait Display Labs

P026 1003	Portrait/Pivot 1700 .26 Dot Pitch	$1049
P026 1004	Portrait/Pivot 1700 .28 Dot Pitch	$989

GRAPHIC CARDS

radius

R013 1042	Radius Thunder II GX 1152	$399
R013 1039	Radius Thunder II GX 1600	$699
R013 1059	Radius Thunder IV GX 1600	$1989
R013 1061	Radius Thunder IV GX 1152	$1589
R013 1069	Radius PrecisionColor 8/1600 PCI Card	$479
R013 1070	Radius Thunder 30/1152 PCI Card	$799
R013 1071	Radius Thunder 30/1600 PCI Card	$1189
R013 1072	Radius ThunderColor 30/1152 PCI Card	$1569
R013 1073	Radius ThunderColor 30/1600 PCI Card	$1999
R013 1018	Radius VideoVision Studio 2.5.1	$2399
R013 1026	Radius Spigot Power AV	$599

ATi TECHNOLOGIES INC.

A143 1010	ATI XCLAIMGA 2MB PCI Graphics Card	$359
A143 1009	ATI XCLAIMGA 4MB PCI Graphics Card	$469

TRUEVISION

T040 1001	Targa 2000N (NuBus)	$3695
T043 1001	Targa 2000 (PCI Mac)	$4295

PRINTERS

HEWLETT PACKARD

H047 1030	HP LaserJet 5MP Laser Printer	$1045
H047 1039	HP DeskWriter 600 InkJet Printer	$299
H047 1033	HP DeskWriter 660C Inkjet Printer	$399
H047 1041	HP DeskJet 850C InkJet Printer	$515
H047 1042	HP DeskJet 1600CM/PS PostScript Printer	$1985
H047 1047	HP DeskJet 340 InkJet Printer	$299
H047 1048	HP Mac Adapter for DeskJet 340 InkJet Printer	$29.95

EPSON

E047 1018	Epson Stylus Color II	$449
E047 1019	Epson Stylus Color Pro	$599

NEC

N027 1001	NEC SilentWriter Model 640	$699
N027 1006	NEC SuperScript 3000M Color Dye-Sub	$949

SCANNERS

EPSON

E045 1003	Epson ES-1200C Pro-MAC Color Scanner	$1179
E045 1013	Epson ES-1000C MAC Scanner	$735

AGFA

A055 1011	Agfa StudioScan IIsi	$939
A055 1001	Agfa Arcus II	$2195

HEWLETT PACKARD

H045 1013	HP ScanJet 4s Personal Scanner	$345
H045 1009	HP ScanJet 4c Color/GS Scanner	$949

MICROTEK

M150 1006	Microtek Scanmaker III	$1989
M150 1026	Microtek Scanmaker E3	$399

UMAX

U010 1044	Umax PowerLook Pro w/ Transparency Adapter	$1949
U010 1053	Umax Vista-S8 LE w/ Transparency Adapter	$799
U010 1038	Umax Vista-S8 Pro	$769
U010 1010	Umax Vista-S6 LE	$539

GRAPHICS TABLETS

WACOM

			w/Painter 4.0	
W010 1026	ArtPad II 4x5 with Erasing Pen	$139	W010 1033	$414
W010 1028	ArtZ II 6x8 with Erasing Pen	$298	W010 1034	$573
W010 1029	ArtZ II 12x12 with Erasing Pen	$425	W010 1035	$699
W010 1030	ArtZ II 12x18 with Erasing Pen	$695	W010 1036	$969

ACCELERATORS

DAYSTAR DIGITAL

D040 1018	DayStar Turbo 040	$699
D040 1057	DayStar 100MHZ PowerCard 601	$969
D040 1043	DayStar 100MHZ PowerPro 601	$1199
D040 1039	DayStar 66MHZ Turbo 601 for IIci	$839
D040 1048	DayStar 100MHZ Turbo 601 for IIci	$1139
D040 1050	DayStar 100MHZ Turbo 601 for IIsi	$1139
D040 1052	DayStar 100MHZ Turbo 601 for Performa, IIvx, IIvi	$1139

MODEMS

FAST MAC

B030 1007	Fast Mac V.34 28.8 Fax/Data Modem	$139

BEST DATA

Merging Multimedia & Communications

B020 1001	Best Data 2834FLXMAC 28.8 V.34 External Mac	$165
B020 1003	Best Data 2834VLXMAC 28.8 V.34 External Mac w/Voice Mail	$199

GLOBAL VILLAGE COMMUNICATION

G050 1006	TelePort Gold II	$109
G050 1016	TelePort Platinum	$199
G050 1002	PowerPort Mercury for PB 5xx	$325
G050 1019	PCMCIA 28.8KBPS Fax/Data/10BaseT Ethernet	$499
G050 1020	PowerPort Platinum PCMCIA Card 28.8kbps Fax/Data	$339

Megahertz

M070 1021	28.8Kbps PC Card modem w/XJACK®	$245
M070 1022	14.4Kbps PC Card modem w/XJACK®	$185

TDK

T210 1001	28.8Kbps V.34 Data/Fax PCMCIA modem Card	$239

NETWORKING

ASANTÉ

A120 1010	10BaseT FriendlyNet Media Adapter FN10TA	$39.95
A120 1023	Thick/10BaseT MCiNB-10T	$109
A120 1003	10BaseT Hub (8 RJ45 ports, 1 AUI & 1 BNC) 10THUB/8	$149
A120 1001	10BaseT Hub (12 RJ45 ports, 1 AUI & 1 BNC) 10THUB/12	$275
A120 1032	ASANTÉ Micro ASANTÉPRINT 10BT	$285
A120 1054	ASANTÉ Ethernet card for Nubus 10BT	$49

radius 81/110 — $1489*

BEST BUY

Features:
730MB Hard Drive
8MB RAM
4XCD-ROM

Monitor not Included. *Price after $200 rebate. Offer ends 1/31/96 R012 1005

DAYSTAR DIGITAL — $1139

100MHz

PowerPC Upgrades for the Mac IIci, IIvx, IIvi, IIsi and Performa 600

Turbo 601

30 DAY MONEY BACK GUARANTEE

D040 1048

EPSON — $1179

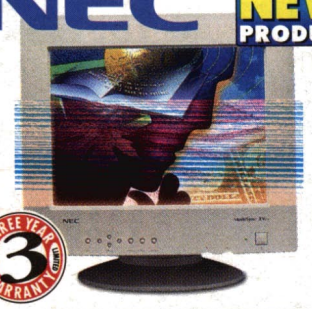
ES-1200C Scanner

2 YEAR WARRANTY

High detailed 4800dpi, 30-bit color scanning.

E045 1003

NEC — NEW PRODUCT — $799



MultiSync XV17+
17" Color Display

3 YEAR WARRANTY

N026 1032

VISIONEER — $359

PaperPort Vx

The Easiest way to get paper into your Mac.

30 DAY MONEY BACK GUARANTEE

V029 1008

FastMac v.34 — $139

28,800 bps Modem

BEST BUY

5 Year Manufacturer's Warranty

B030 1007

Source Code 651226

ClubMac®

1-800-258-2622

General Sales	24 Hours a Day, 7 Days a Week (800) 258-2622	Customer Service	M - F 7am - 5pm PST (800) 551-6398
Inquiries and Int'l Sales	M - F 5am - 9pm PST (714) 768-8130	Technical Support	M - F 7am - 5pm PST (800) 854-6227
Corporate/Educ Sales	M - F 5am - 5pm PST (800) 258-2621	24-Hour Fax	(714) 768-9354

1-800-258-2622 1-800-CLUBMAC 1-800-258-2622

CRA SYSTEMS, INC. 800/375-9000 — radius — SUPERMAC — CRA SYSTEMS, INC. 800/375-9000

AWARD WINNING PRODUCTS AT OR BELOW DEALER COST!

Quantities are Limited... Supplies Won't Last...

DISPLAYS

TWENTY ONE INCH DISPLAYS

21 Inch DiamondTron Monitor — From $1999*
- Rated Superior to Trinitron
- Largest Aperture Grille monitor available
- Up to 1600x1200 on Macs and PCs
- Full Digital Control from Keyboard

Radius SuperMatch 21 TXL $1999*
Radius PrecisionView 21 $CALL
SuperMac PressView 21 "Editors Choice" $1999*

Radius PrecisionColor Display 21 — $1499* retail $2599
- 1600x1200 to 1024x768 • Flat screen
- Razor sharp .28 dot pitch Ideal solution for color accuracy

Radius 21 inch Grayscale Display $799
*With qualifying videocard, accelerator, or computer purchase

TWENTY INCH DISPLAYS

TWO PAGES FOR THE COST OF ONE!

Retail $1999 — While Supplies Last!—Your Choice of...

Digital 20 inch Color Display — $999* Best Screen Uniformity!
- Up to 1280x1024 on Macs & PCs
- Advanced Digital Controls
- Non-glare, Dynamic-Focus CRT

RasterOps 20 inch Multimode $999*

Radius IntelliColor Display 20 — From $1599* Retail $2399
- MacUser, MacWorld, MacWeek Editor's Choice
- 1600x1200 to 640x400

*With qualifying videocard, accelerator, or computer purchase

Ikegami 20 inch Grayscale Display $699
Radius 20 inch Grayscale Display $699

SEVENTEEN INCH DISPLAYS

SuperMac/E-Machines T16IIMR — Retail $1299 $699*
- High Grade Studio Trinitron Series
- .25mm multi-resolution • Editors Choice
- 1024x768 to 640x480 resolutions

SuperMatch 17T $799*
PrecisionColor Display 17 from $899
PrecisionView 17 $CALL
Radius PressView 17sr $CALL
*With qualifying videocard, accelerator, or computer purchase

PIVOT DISPLAYS

Radius Color Pivot LE — $399* We have cards for SE/30, LC, IIsi, Nubus, and Quadras
* With purchase of video card.

Precision Color Pivot $599
Grayscale Pivot $399
Radius Full Page Display $299
Portrait Display Labs 1700 $CALL

VIDEO CARDS

1600x1200 PCI/NUBUS

Radius ThunderColor 30/1152 & 1600	$CALL
IMS Twin Turbo 128M	$CALL
Radius PrecisionColor 8/1600	$599
EAsycolor 1600/16	$CALL
Radius Thunder IIs/Thunder IVs from	$999
Radius Thunder 24/GT	$499

21" RESOLUTIONS

Radius PrecisionColor Pro 24X	$699
Thunder 8 "Fastest 8 bit card ever"	$CALL
Thunder 24 (DSP available)	$899
SuperMac Ultra LX	from $899*
RasterOps Horizon 24	from $999*
RasterOps 24XLTV	$1999
RasterOps PaintBoards/Prism GT	$CALL
Radius PrecisionColor 8XJ	$499

*DSP Available

20/19" RESOLUTIONS

SuperMac Spectrum 24 Series V	$599
Radius PrecisionColor Pro 24XK	$CALL
SuperMac Futura MX	$499
RasterOps PaintBoard Lightning	$CALL
SuperMac Spectrum 8	$199
PowerView/SuperView for Powerbooks	$199/$299

17/16" RESOLUTIONS

Radius 24 bit video cards	from $199
Radius PrecisionColor Pro 24XP	$CALL
SuperMac Futura SX	$299
SuperMac Futura II SX w/Ethernet	$399

MULTI MEDIA

Spigot II Tape — $499! w/Adobe Premiere
Full Motion Video Input/Output

Apple PowerMac AV Card	$CALL
VideoSpigot Cards Nubus/LC/IIsi	from $99*
VideoVision Studio and Array	$CALL
TrueVision Targa 2000 PCI	$CALL
Simply TV for output from LC/PDS slots	$399

*With purchase of Adobe Premiere

OPTICAL DRIVES

1.0GB OPTICAL FOR THE COST OF 230 MB

Don't bother building a library of tiny 44, 200 or 230 MB optical and Syquest cartridges. After buying only 10 1.0GB cartridges your savings will pay for this drive.

MAXOPTIX 1.0GB MO — From $699
- 1MB Cache, 9x more than 230 MB Optical Drives
- Maximum Reliability with 25 year operating life
- Reads 650MB and WORM cartridges

PRINTERS

COLOR PRINTERS

QMS Magicolor — From $3799
- Internal SCSI drive
- Flexible 300 or 600 dpi
- Blazing 33 MHz RISC processor
- PostScript Level 1, 2 and HP/PCL-5
- Only Color Laser Choice for envelopes

QMS ColorScript 1000	$2699
Tektronix 540 Plus	$CALL
11x17 Tabloid Color Thermal printers	from $2999
QMS ColorScript 210/230	from $1599
Mitsubishi G370-10u 300dpi Color	$CALL

TABLOID LASERS

QMS 860 Hammerhead 600-1200dpi — From $1999
- 11 x 17 full bleed
- PostScript Levels 1&2
- 8ppm heavy-duty Canon engine
- Powerful RISC processor

Hewlett-Packard 4mv	$CALL
GCC SelectPress 1200x1200dpi	$4999
22ppm QMS PS2210/2220	$1899/$1999

HOME/OFFICE

Hewlett-Packard 5mp	$CALL
Apple Laserwriter Select 360	$1399
QMS 815/815mr 8ppm	$699/$999
QMS PS 825/825mr	$799/$1099
QMS PS 1500/1700	$1299/$1999
Apple OEM laserwriter	$499
Seikosha SP-2400AP dot matrix	$179
Apple Imagewriter/Stylewriter	$CALL
GCC WriteMove/WriteMove II	$149/$249

ACCELERATORS/DSPs

CPU UPGRADES

Radius Rockets 33MHz to 40MHz	from $399
Stage Two Rocket 40MHz w/FPU	$699
-includes SCSI II Booster and RocketShare	
Rocketshare multiprocessing software	$299
Speed upgrades for all 680X0 and PPCs	$CALL

PHOTOSHOP ACCELERATION

Radius PhotoBooster — From $199 Retail $999
- Twin AT&T 3210 66MHz DSPs
- Accelerates Photoshop Filters
- Up to 10x faster than a Quadra 950
- MacUser Editor's Choice

SuperMac ThunderStorm DSP Boards	$299
Radius Color Engine for Thunder 30 Cards	$CALL
Radius PhotoEngine Nubus	$CALL
Photoshop Deluxe Edition	$299

Since 1986, CRA Systems has been offering a great selection of new and factory clearance technology products. Most of these items have been offered at or below dealer cost due to volume purchases direct from the manufacturers.

CPU SPECIALS

QUADRA BLOWOUT!

Macintosh Quadra 605/LC 475 4/250 — MW ★★★★ $599*
- NEW with 1 year warranty!
- 50/25 MHz 68LC040 processing power
- Built-in video supports up to 21" color monitors
- Multi-Media ready - just plug in CD-ROM
- Supports stereo sound

*CPU Only

Complete System w/CPU, Monitor & Keyboard $799

SYSTEM ADD-ONS

Star SJ-144MC — $199*
- Full-Color output at crisp Laser-quality 360dpi Printer
- Heat Fusion process avoids Ink-jet smear
- 2-year Manufacturer's Warranty
- ADD box of 3 Color Cartridges ($57 value) only $29

* With purchase of any other item in ad

Add Color Printer and External Modem	$249
Add processor upgrade from 25MHz to 33MHz	$149
Add CD-ROM Multimedia Kit w/ Speakers, Mic	$199

POWER MACS

NUBUS POWER MAC SPECIALS

PowerMac 6100/60 & 66	$CALL
PowerMac 7100s	$CALL
PowerMac 8100/110	$CALL
Radius 81/110	$CALL

PCI POWER MACS AVAILABLE
$CALL for lowest prices

INCREDIBLE DEALS ON 680X0 MACS

Quadra 800/840AV/950	From $1499	Powerbook DUO 210/230/250	From $899
Mac II/IIfx/IIci/IIsi	From $299	Powerbook 160/170/180	From $1299
Mac LC, LCII/III	From $399	Mac Plus, SE, SE30	From $149

CRA SYSTEMS

800/375-9000

CRA Systems, Inc.
300 South 13th St., Waco, TX 76701

Monday thru Friday 9AM to 8PM CST Saturday 10AM-4PM *Sales Dept. Only*
Domestic Sales 800.375.9000 Fax 817.750.9050
Consultants/Dealers 817.754.2131 International Sales 817.754.2120

Prices reflect 2% cash discount. Not liable for typographical errors.
All shipping charges for COD orders to be secured by credit card.
Dealers and consultants call for quantity pricing. We ship anywhere.

Workgroup Servers

WGS 6150 16/500CD/AppleShare	$2499
WGS 8150 16/1GB/CD/DAT/AppleShare	$3999
WGS 9150 16/2GB/CD	$4999

CPUs

Mac Plus 1/0 w/ keyboard & mouse	$149
Mac SE 1/20	$299
Mac SE/30 4/80	$CALL
Mac Classic 2/40	$399
Mac II 0/0	$349
Mac IIcx 4/0	$449
Mac IIci 4/0	$599
Radius 81/100 8/730/CD w/Thunder 24	$2499
Radius 81/110 16/730/CD w/Thunder 24	$2999

Cards-Network

Apple Token Talk 1/4-4/16	$299/$499
DCA Mac Irma 3270	$499
DCA Mac Irma 3270 for SE	$499
EtherNet boards for SE, SE/30	$99
EtherNet LC thin coax	$99
Shiva FastPath 4 Gateway	$999

Cards-Misc.

Apple IIe emulation for LC	$149
Apple IIci cache card	$39
Apple serial Nubus card	$199
IIsi Nubus or PDS adapter card	$149
Orange Micro 286 board	$199
Orange Micro 386 board	$299

Cards-Video

Apple 8•24 GC	$449
RasterOps 104 24bit TPD	$299
RasterOps 24XLi	$799
RasterOps 24L with 801	$699
RasterOps 708+ 8bit for 20"	$299
SuperMac Spectrum 24bit for 20"	$599
E-Machines Colorlink EX/T	$299
E-Machines Colorlink SX/T	$499
E-Machines T19 Card for SE30 / IIsi	$299

Input/Output

Apple Scanner	$499
HP Scanjet	$399
Howtek ScanMaster III+	$1999
Mirrus Film Recorder	$2999
Voice Navigator II	$499

Drives

Apple 250mb HD internal	$179
Apple 250mb HD external	$269
Apple 350mb HD internal	$229
Apple 350mb HD external	$307
NEC 4x CD Rom drive, external	$299
Apple 5.25 Ext. PC drive w/SE or Nubus	$99
PowerBook 20mb/40mb/80mb	$79/$99/$149
Dayna 360k/1.2mb-740K/1.44mb	$499
Exabyte 8mm 5gb tape backup	$999
Maxtor 800mb WORM drive	$499
NEC CDR 72/73/74 CD drive	$99/$199/$299
Ricoh HyperSpace 600mb Read/Optical	$799

Monitors

Apple 15" FPD Mono/Grayscale	$449
E-Machine ColorPage 15 with Card	$499
Radius Display Stand	$59
Apple universal monitor stand	$49

Upgrades

All Logic Board Upgrades	$Call
Mac SE FDHD Upgrade	$349
Motorola 68040/33 and 68040/40	from $299
QMS 4mb upgrade, Model 100 legal pack	$399

Miscellaneous

110-1500 Watt battery backups	$99-$799
Apple IWII/LQ cut sheet feeder	$99/$149
Apple LQ bin expansion	$79

Printers

Apple ImageWriter I/II	$149/$249
Apple ImageWriter LQ	$449
Apple ImageWriter I wide carriage	$269
Apple LaserWriter 8ppm Postcript	$499
Apple LaserWriter IInt/ntx	$799/$999
LaserMax 800, 135 fonts	$2499
Mitsubishi G370-10u 300dpi Color	$CALL
Newgen Turbo PS400	$1099
QMS ColorScript 100 Model 10	$1499
Qume Script Ten (white write)	$1399
Ricoh Laser 6000/ps	$899
Texas Instruments 2108	$999

Parts

Mac Plus logic, no ROMs	$99
All logic boards	$CALL
All power supplies	$CALL
Mac Plus power supply	$129
SE analog board	$129
SE Power Supply	$129
1.44 FDHD floppy (used)	$199
400K/800K floppy drive	$49/$99
Apple ADB Mouse II (new)	$69
Mac IIcx case and power supply	$199
Mac II/IIx/IIfx case and power supply	$199
CRT & yoke for Plus, SE	$49
Over 20,000 items in stock, if you don't see it-....Call us!	

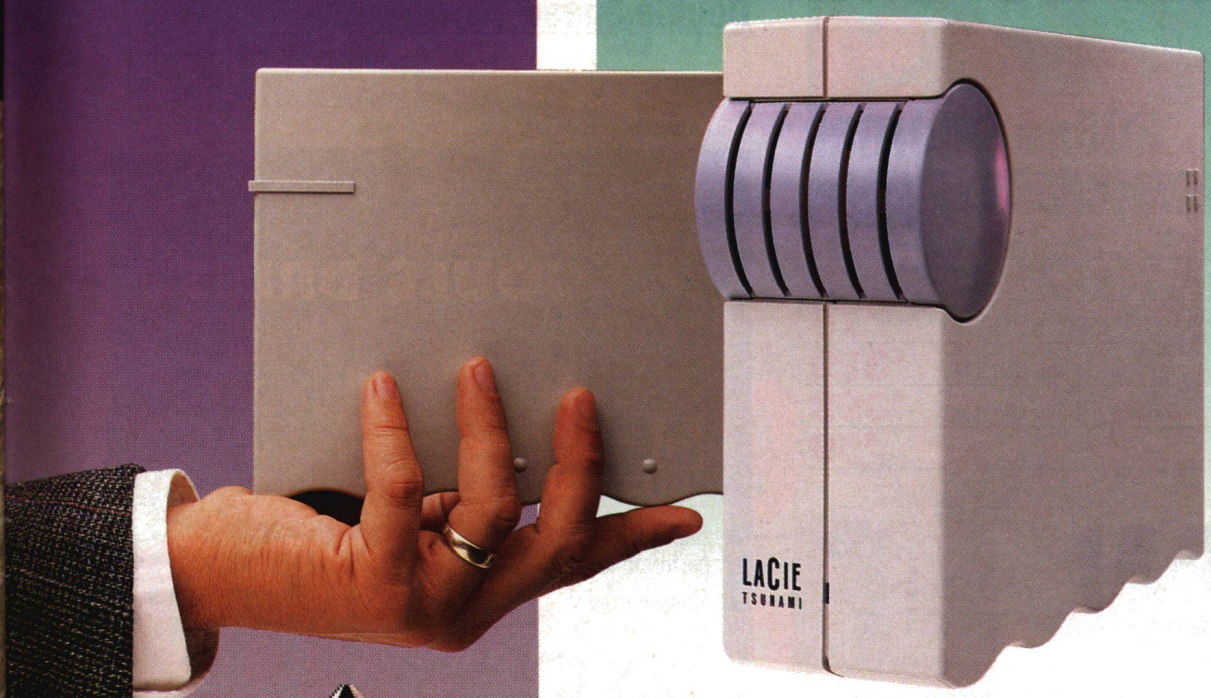
LACIE LIMITED

offers a world of storage solutions

Ready to Plug And Play

La Cie Storage Utilities FREE!*

Featuring TSUNAMI HARD DRIVES



- Ready to plug and play with switchable active termination, cables, and La Cie Storage Utilities.
- High-speed drive and disk-controller technology.
- Up to 4.3GB capacity in a 6.5"x8.5"x2.2" compact case.

$269
Tsunami 850 MB

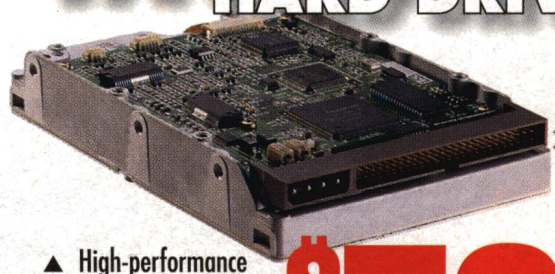
Quantum		
850MB	3 year warranty	$269
1080MB	3 year warranty	$319
2210MB Capella	5 year warranty	$679
4.3GB Grand Prix	5 year warranty	$1029
IBM		
NEW! 2160MB Ultrastar ES	5 year warranty	$669

I.D. Magazine 40TH ANNUAL DESIGN REVIEW WINNER 1994

Industrial Design Excellence Award SILVER 1994

MACWORLD MW EDITORS' CHOICE

Best Value! INTERNAL HARD DRIVES



Special LOW Price

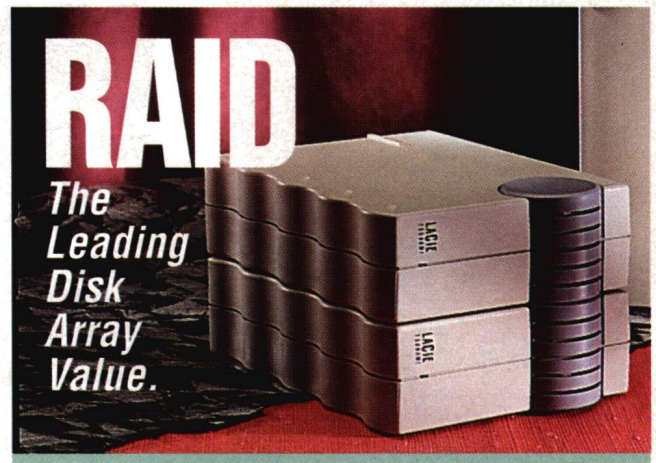
- High-performance drive and controller technology.
- Built-in SCSI interface.
- Formatted, tested and backed by Quantum warranties.

$599
IBM 2 GB

2.5" Hard Drives – Quantum		
341MB	1 year warranty	$199
3.5" Hard Drives – Quantum		
850MB	3 year warranty	$199
1080MB	3 year warranty	$249
2210MB Capella	5 year warranty	$619
4.3GB Grand Prix	5 year warranty	$949

Brackets available for $10 with internal hard drive purchase.

3.5" Hard Drives – IBM		
NEW! 2160MB Ultrastar ES	5 year warranty	$599



- Fail-safe storage for huge graphic, music or video files.
- Supports RAID levels 0-1-4-5 for speed, performance and reliability.
- Add PCI SCSI Card for improved performance.

$1999
4.2GB RAID

Quantum drives bundled with Trillium Research Software configurable to levels 0, 1, 4 & 5.	RAID Drives only	NEW! RAID with SCSI CARD
4.2GB Grand Prix 5 year warr.	$1999	$2299
8.4GB Grand Prix 5 year warr.	$3499	$3799
16.8GB Grand Prix 5 year warr.	$6999	$7299
25.8GB Grand Prix 5 year warr.	$9999	$10299

AMERICAN EXPRESS VISA MasterCard

Order Now: 1-800-999-1369

* La Cie Storage Utilities FREE with the purchase of a La Cie Drive. Call for details, conditions, limited money back guarantee, and free offers. Prices do not include shipping and only apply to products shipped within the continental United States. Add sales tax where applicable. Tsunami, Joule, Joule Portable, La Cie Term, Silverlining, La Cie and the La Cie logo are trademarks of La Cie, Ltd. All other trademarks are the property of their respective companies. All prices, specifications, terms, warranties, descriptions, products and services herein are subject to change without notice or without recourse. © Copyright 1996 La Cie, Ltd. All rights reserved.

LACIE LIMITED

now versatile storage solutions...

EZ135 MB Cartridges $19.95

INCLUDES FREE CARTRIDGE!

ALL NEW FROM SYQUEST EZ135 DRIVES

- EZ offers the lowest per-megabyte media cost on the market.
- 13.5msec access time doubles ZIP's speed.
- The removable media value leader.
- Full 2 year warranty.

$229 200MB Internal

Syquest		
200MB Internal	1 year warranty	$299
200MB External	1 year warranty	$369
200MB Cartridge		$79
270MB Internal	1 year warranty	$329
270MB External	1 year warranty	$399
270MB Cartridge		$59

CD-RECORDABLE DRIVES

NEW Product

- CD-Rs ship with Gear Multimedia software.
- Create your own CD with fast write capability.
- Low cost media for backup.

2X Read/Write **$1099**

CD-Recordables		
Double Speed (2X) Read/Write		$1099

PORTABLE JOULE DRIVES

- High-speed Quantum performance.
- Share hard disk-sized files with diskette convenience.
- Docking provides new security and backup solutions.

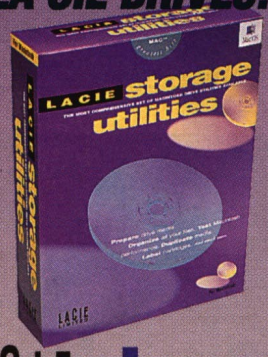
$369 Joule 1 GB

3.5" Hard Drives – Quantum		
850MB Trailblazer	3 year warranty	$329
1080MB Fireball	3 year warranty	$369
2210MB Capella	5 year warranty	$799

Removable Drives		
230MB Optical	1 year warranty	$469
270MB SyQuest	1 year warranty	$419
8.0GB DAT Tape	1 year warranty	$929

Joule Bases		
850MB Quantum Hard Drive	3 year warr.	$389
1080MB Quantum Hard Drive	3 year warr.	$429
230MB Optical	1 year warranty	$529
270MB SyQuest	1 year warranty	$479

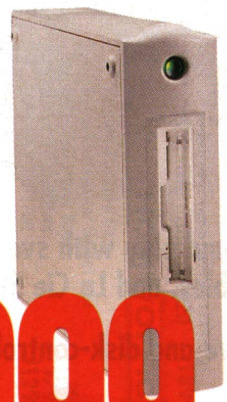
A $99 VALUE FREE WITH ALL LA CIE DRIVES!



LACIE storage utilities

Includes acclaimed Silverlining disk management software plus four other vital performance enhancements!

OPTICAL and DAT



- Optical is the new standard in removable reliability.
- DAT – The ideal medium for data backup.

$1999 2.6GB Optical

Other Optical		
NEW! 230MB PowerBook Internal	1 year warranty	$399
230MB Internal	1 year warranty	$399
230MB External	1 year warranty	$469
230MB Optical Cartridge		$19.95
NEW! 2.6GB External	1 year warranty	$1999
2.6GB Optical Cartridge		CALL

DAT Drives Inc. Retrospect	Internal	External
8.0GB Internal DAT DDS-2	$799	$899
8.0GB Turbo DAT DDS-2	$1099	$1149

LACIE LIMITED

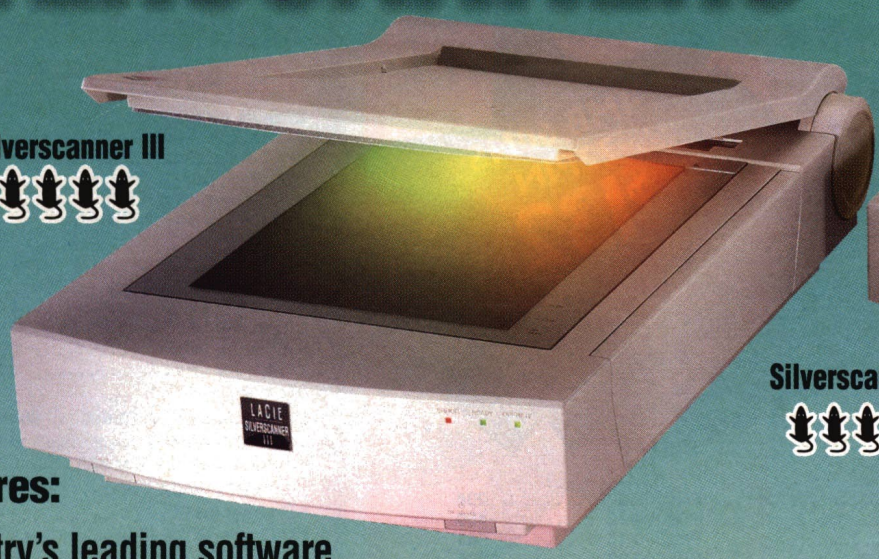
Call Today: 1-800-999-1369

* Call for details, conditions, limited money back guarantee, and free offers. Prices do not include shipping and only apply to products shipped within the continental United States. Add sales tax where applicable. Joule, Joule Portable, La Cie Term, DataSafe, Silverlining, La Cie and the La Cie logo are trademarks of La Cie, Ltd. All other trademarks are the property of their respective companies. All prices, specifications, terms, warranties, descriptions, products and services herein are subject to change without notice or without recourse. © Copyright 1995 La Cie, Ltd. All rights reserved.

30 BIT SCAN CLARITY FOR LESS

SILVERSCANNERS

LACIE
LIMITED



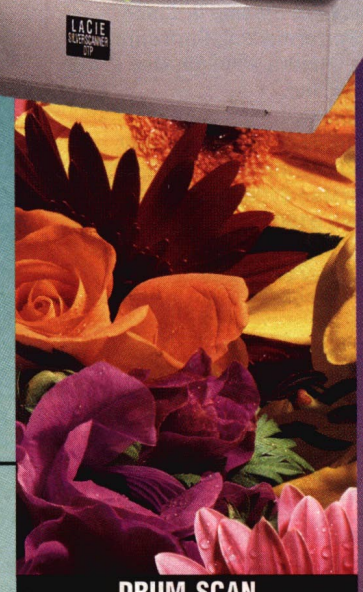
Silverscanner III

MacUser BEST BUY

Silverscanner DTP

Compare these features:

- The industry's leading software.
- Operates in true 30-bit pixel depth.
- Color previews in seconds.
- Scans in under a minute.
- Captures over 1 billion colors.


DRUM SCAN

30 BIT SILVERSCAN

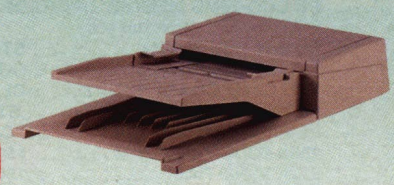
Silverscanner DTP Complete
Desktop color, 400x800dpi interpolated to 3200 dpi.
- ▲ Photoshop LE
- ▲ Read-It Pro OCR
- ▲ Silverscan

$899

Transparency Adapter
$799

Silverscanner III Package 1
Pro color, 600x1200dpi interpolated up to 4800 dpi.
- ▲ Color It!
- ▲ Read-It Pro OCR
- ▲ Silverscan

$1499



Sheet Feeder
$499

Silverscanner III Package 2
Pro color, 600x1200dpi interpolated up to 4800 dpi.
- ▲ Photoshop (full)
- ▲ Read-It Pro OCR
- ▲ Silverscan

$1799

Compare our drum beating color scans.

Friendly! Fast!

...more customer support

Toll-free tech line: 1-800-288-9919

INSTANTLY SCAN BUSINESS CARDS INTO YOUR MAC.

NOW Contact™ FREE with La Cie VIP SCAN!

VIP SCAN $199

Scan names, addresses, phone numbers and logos for quick access, then export to your favorite contact management software.

30 Day Money Back Guarantee

1 Year Scanner Warranty

Mon.– Fri. 5AM-7PM & Sat. 8AM-NOON PST
International 503-520-9000
Fax 503-520-9100 (24 hrs.)
http://www.lacie.com/~lacie

AMERICAN EXPRESS VISA MasterCard

THE LLB COMPANY, INC.

To Order:
1•800•848•8967
International: 206•746•0229
Fax: 206•746•5168

MEMORY

Standard 30-Pin Simms:
Plus, SE, SE 30, classic, Classic II, Color Classic, LC, LCII, Performa 200, Performa 400-430, Performa 600, Quadra 900/950, Mac II, IIx, IIcx, IIsi, IIci, IIfx, IIvx, IIvi.
Standard 72-Pin Simms:
Quadra 605/630, 610, 650, 700, 800/840AV, LCIII, LC475, LC630, Performa 450-560, 575 and 6115CD, PowerMac 6100, 7100, 8100, WS 80, WS60, WS 95, WS 6150 and WS 8150, 9150.
168 Pin Dimms:
PowerMac 9500, 8500, 7500, 7200

Standard 30-pin SIMMs		
1MB 100NS	8001	$31
1MB 80/70NS	8000/8007	32/35
2MB 80/70NS	2000/2007	65/74
4MB 80/70NS	4000/4070	121/135
8MB 70NS	8888	315
16MB 70NS	1601	599
30-pin , 36 bit SIMMS		
1MB 70NS	9070	$45
4MB 70NS	9007	159
4MB PAL SIMMs for II,IIx		
4MB 80/70NS	4100/4107	$149/151
64-pin SIMMs for IIfx		
1MB 80/70NS	8080/8070	$43/43
4MB 80/70NS	4080/4087	155/155
8MB 70NS	N8887	365
16MB 70NS	N1680	665
72-pin SIMMs		
4MB 70/60NS	4032/4632	$106/112
8MB 70/60NS	8032/8632	227/229
16MB 70/60NS	16732/16602	428/448
32MB 60NS	32632	935
72-pin, 36 bit SIMMS		
4MB 70NS	43670	$162
8MB 70NS	83670	339
16MB 70NS	163670	551
32MB 70NS	323670	1221
168-pin DIMMs		
4MB 70NS	4764	$153
8MB 70NS	8764	238
16MB 70NS	16764	460
32MB 70NS	32764	970
64MB 70NS	64764	2195

PB 5300 Series		
8MB RAM	PB5300-8	298
12MB RAM	PB5300-12	469
16MB RAM	PB5300-16	583
32MB RAM	PB5300-32	1175
PB 190 Series		
4MB 70NS	NPB190-4	$207
8MB 70NS	NPB190-8	368
12MB 70NS	NPB190-12	507
16MB 70NS	PB190-16	722
32MB70NS	PB190-32	1199
PB500 Series		
4MB RAM	PB/BB-4	$155
8MB RAM	PB/BB-8	298
16MB RAM	PB/BB-16	577
32MB RAM	PB/BB-32	1159
PBDUO 210/230 SERIES		
PB DUO-4MB MEMORY UPGRADE		$169
PB DUO-8MB MEMORY UPGRADE		299
PB DUO-12MB MEMORY UPGRADE		479
PB DUO-14MB MEMORY UPGRADE		549
PB DUO-20MB MEMORY UPGRADE		785
PB DUO-28MB MEMORY UPGRADE		1172
FPU's/Math CoProcessors		
Centris FPU 25MHz	ST04025	$189
FPU 33MHZ DUO/P600	DUOp600 33MHz	52
FPU Color Classic 16MHZ	CLRCL 16MHz	44
LC575 33MHZ Math CoProc.	ST04033	285
PowerMac 6100, 7100, 8100 VRAM/CACHE		
256K 80NS Video RAM	1516	$17
512K Video RAM	1500	22
256K Cache Card PM6100, 7100	PM256	107
512K Cache Card PM6100, 7100	PM512	411
1MB Cache Card PM6100, 7100	PM1MG	792
PowerMac 7200, 7500, 8500, 9500 VRAM/CACHE		
1MB VRAM PM7200/7500/8500	1517	$65
2MB Video RAM PM9500	N7VR2MB	229
256K CACHE DIMM	PMPCI256	176
512K CACHE DIMM	PMPCI512	449

SCANNERS/PRINTERS

EPSON 1200C PRO	$1202
VISIONEER PaperPortVX for Mac	365
NIKON CoolScan External	1379
NIKON Super CoolScan	1985
AGFA StudioScan IISI	935
POLAROID SPRINTSCAN	1555
UMAX	
POWERLOOK I I	$2829
(includes Transparency Adapter)	
VISTA S-8 PRO+	814
VISTA S-8 LE+	714
VISTA S-6 PRO+	698
VISTA S-6 LE+	598
APPLE	
Color Laserwriter 12/600	$6465
Laserwriter 4/600	895
Personal Laserwriter 320	809
HEWLETT PACKARD	
HP LaserJet 5L	$515
HP LaserJet 4M Plus	1990
HP LaserJet 4V/4MV	2040/2901
HP LaserJet 4Si	3135
EPSON	
STYLUS COLOR PRINTER	$582

ACCELERATORS

DAYSTAR			
PowerPro 601 80MHz w/RAM Cache			$1455
PowerPro 601 100MHz w/Cache			1259
Turbo 040 40MHz w/Cache			715
Turbo 040i 33MHz w/Cache No FPU			609
Turbo 601 66MHz for IIci/IIsi (w/adpt)/IIvx/IIvi/P600			859
Turbo 601 100MHz for IIci/IIsi (w/adpt)/IIvx/IIvi/P600			1239
Turbo 601 100MHz IIsi W/Adpt			1239
Turbo 601 100MHz IIvx, IIvi, P600			1239
PowerCard 601 100 MHZ			959
SONNET			
Allegro LC II	33MHZ	LCII,Perf.400,405,410,430	$145
Allegro Mac II	33MHZ	Mac II	179
Allegro Mac IIx	33MHZ	Mac IIx, SE/30	179
Allegro SE-33	33MHZ	Mac SE	189
Budget Booster	25MHZ	Mac LC	95
Presto 040 LC	50/25MHZ	Mac LC/LCII/Perf400,405,410,430	199
Presto 040 LC	50/25MHZ	Mac LC/LCII/Perf400,405,410,430	299
Presto 040	80/40MHZ	Mac IIci, IIsi, IIx, IIcx	299
Presto 040	80/40MHZ	Mac IIci, IIsi, IIx, IIcx	399
(w/cache/FPU)			
Presto 040	80/40MHZ	Mac IIci, IIsi, IIx, IIcx	399
Presto 040	80/40MHZ	Mac IIci, IIsi, IIx, IIcx	499
(w/cache/FPU)			
*Presto Adapter			$59

DAYSTAR DIGITAL

POWERPRO 601 80MHZ W/RAM CACHE $1455

DRIVES

APPLE EXTERNAL HARD DRIVES			
540MB	$315	730MB	345
850MB	339	1080MB	409
2GIG	925		
QUANTUM			
QUANTUM 1080 External Fireball			$349
QUANTUM 540MB External Fireball			259
QUANTUM 850MB External Trailblazer			279
QUANTUM Grand Prix 4.2GB 8.6MS			1195
QUANTUM Grand Prix 2.1GB			865
IOMEGA ZIP DRIVES			
ZIP DRIVE			$199
JAZ DRIVE			605
NEW! SYQUEST EZ135 W/CART			$235
RUMI CD-ROM DRIVES			
RUMI CD-ROM DRIVE - MS			$145
RUMI CD4X DRIVE w/10 CD's & SPEAKERS			$290
RUMI SYQUEST DRIVES			
RUMI 88MB/105MB W/CART			$375/369
RUMI 200MB/270MB W/ CART			479/479

Call for NEC & FWB

270MB SyQuest w/Cartridge $479

Rumi Peripherals

MODEMS

Supra Corporation

Global Village		
Teleport GoldII™		$112
Teleport Platinum 28.8 V.34		205
PowerPort Duo 2XX Mercury 19.2.		329
PowerPort 1XX Platinum 28.8 V.34		339
PowerPort 5XX Mercury for 500		342
Global Village PC Card		
PP Gold PC Card		$189
PP Platinum PC Card		349
PP Platinum Pro PC Card 28.8		519
SUPRA		
SUPRA 14.4 S/R FAX		$205
SUPRA 28.8 PB FAX/MODEM		319
SUPRA 28.8 V.34 S/R Fax Modem		229
SUPRA V.32BIS PB FAX		165
SUPRAEXPRESS 144 PLUS/28.8 Ext. V.34		99/179
US ROBOTICS		
Sportster® True 28.8 V.34 Internet Bundle		$212
Sportster 14,400 Mac&Fax		119
ZOOM		
ZOOM 14.4 External		$79

TELEPORT PLATINUM $205

Free Catalog! 1•800•848•8967

Electronic orders: Compuserve @ 73423,1272 @Compuserve.com
- P.O.'s accepted upon approval
- All major credit cards accepted - No surcharge - when shipped
- Prices subject to change - Not responsible for errors
- We export to most countries in the world
- Orders received before 8:00 pm EST weekdays shped same day
- Open 6 am to 7 pm M-F. 9 am to 4 pm Saturdays
- Returns subject to a 15% restocking fee

The LLB Company, Inc. 13228 NE 20th St., Ste. B, Bellevue, WA 98005

Airborne Express Overnight $6 and up

Also at LLB:

Apple Printer Ribbons, Ink & Toner Cartridges

Now featuring **Hewlett Packards** complete line of LaserJet IV & V Series Printers!

HEWLETT® PACKARD

• NEW •
WEB SITE:
HTTP://llb.com

WK012296

MEDIA

media HABITAT

The Original SyQuest Cartridge

	1-4	5-9	10+
44MB 5.25"	$42	$41	$40
88MB 5.25"	$48	$47	$46
200MB 5.25"	$76		$75
270MB 3.5"	$59	$58	$57
105MB 3.5"	$55		$54

SYQUEST 270MB $57

SONY Magneto Optical Disks

5.25" MO 1.3GB 1024k b/s $60
5.25" MO 1.2GB 512k b/s 60
5.25" MO 650MB 1024k b/s 55
5.25" MO 594MB 512k b/s 55
3.5" MO 230MB 26
3.5" MO 230MB/Mac Formatted 28
3.5" MO 128MB 22
3.5" MO 128MB Mac Formatted 24

SONY CD-Recordable

74 Min 4x 650MB-10 Pack $73
74 Min 4x 650MB 8

Verbatim DataLife 4mm/8mm Data Cartridges

8mm, DL 112 Meters 2.5/5.0GB $7
4mm, DL 60 Meters DDS-MRS 1.3GB 7.50
4mm, DL 90 Meters DDS-MRS 2.0GB 9.50

QIC Data Cartridges (For 5.25" Form Factor)

DC6150, 620 Ft. 550 oe, 150MB $12
DC6250, 1020 Ft. 550 oe, 250MB 16
16DC6525, 1020 Ft. 550 oe, 525MB 21

EZ 135 Drives

SYQEZ135CTG ... EZ135 ..... $19.50
- 3pack $57.75
- 10Pack $190.00

Iomega

IO10018 ... ZIP CARTRIDGE 100MB .. $19.50
- 3pack $49.50
- 10 Pack $139.00

IO10168 ... Jaz 1GB Cartridge $123
- 5 Pack $490

IO10171 ... Jaz 540MB Cartridge $69
- 5 Pack $294

CD-ROM

CD-ROM HABITAT

OVER 2,000 TITLES!

Alone in the Dark 3 49	Legend of Kyrandia 3 30	Sammy's Science 38
Conflict Catcher 62	Marathon II 45	Sesame Street Letters 35
Dabbler 2.0 45	Myst 49	Sim Tower 35
Dark Forces 49	Out of the Sun 44	Soft Windows 2.0 ... 279
Descent 50	Passage to Vietnam 39	Speed Doubler 55
Dust 39	Phantasmagoria 59	Stark Trek TNG: Final Unity . 55
FrameMaker 5.0 599	Pocahontas Storybook 35	Thinkin' Things 1, 2 or 3 .. 42
Freehand 5.5 435	Power Pete 27	Warlords II - Disk 42
Havoc 39	Pumba & Timon Game 35	Winnie the Pooh Storybook 36
Indy Car Racing 51	Quicken Deluxe 6.0 ... 65	You Don't Know Jack 32

NEWER HABITAT

Newer™ TECHNOLOGY

INNOVATORS IN POWER AND PERFORMANCE

PC Card

Drives, Flash memory, modems and EtherTech

28.8 Fax Modem $340

Mac SIMMS & DIMMS

for all models of Mac and Power Mac.

Power MacCache

256K Power Mac Cache Memory.

16SE UltraDock $370

SCSI MicroDock

PowerBook Duo Mini Docking Bar.

Meteor Accelerator

50MHz 68040 accelerator with 128K Cache.

PowerBook Memory

2MB to 32MB Memory Modules.

PB2300 4MB $182

Mac Clip & Power Clip

CPU accelerator for Centris, Quadra and Power Mac.

FOR ALL YOUR QUALITY NEWER TECHNOLOGY PRODUCTS CALL NEWER HABITAT

1.800.840.2212

Fax: 206.746.5168

ProDirect 800-524-9952

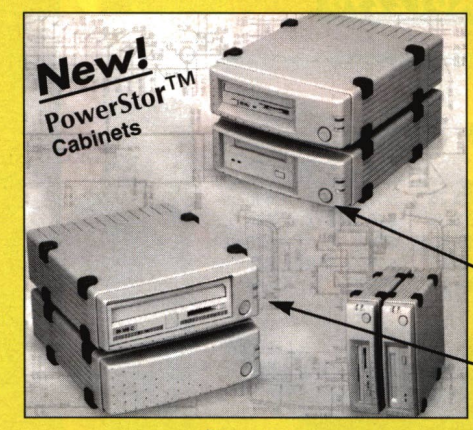
Fax 24 hours a day 612-941-1109
International orders call 612-941-1805
In Minnesota call 612-941-1805

NEVER A SURCHARGE!
***NO SALES TAX!**

Service•Performance•Price... Always™

- Most orders shipped same day!
- Written Quotes by fax in10 minutes or less.
- No surcharge on credit cards•
- Corporate & Government PO's welcomed
- No sales tax collected for most states
  All drives are formatted and come with ALL cables. JUST PLUG AND PLAY

CD ROM Special
Pioneer 4x• 110 MS
ONLY $199 External



- PowerStor™ active termination with the flip of a switch.
- 5 Year 24 Hour Replacement Warranty
- Optional Fixed Daisy Chain Connector... Puts an end to your cable nightmares
- On/Off switch Conveniently located on the FRONT of our cabinet.
- Power and Activity light located on front bezel

Quantum

√	**365 MB Lightning**			$125	$175
	11 ms Seek	4500 RPM	128K Buffer	2 Year Warranty	
	535 MB	***Performance !***		175	235
	9 ms Seek	5400 RPM	512K Buffer	5 Year Warranty	
	540 MB	**Fireball**		185	245
	11 ms Seek	5400 RPM	128K Buffer	3 Year Warranty	
	730 MB	***Value!***		185	255
	11 ms Seek	5400 RPM	128K Buffer	2 Year Warranty	
√	**850 MB**	***Value!***		195	255
	11 ms Seek	5400 RPM	128K Buffer	2 Year Warranty	
	1080 MB Fireball			265	335
	11 ms Seek	4500 RPM	128K Buffer	3 Year Warranty	
	2.2 GB	**Capella**		595	655
	8.5ms Seek	5400 RPM	1024K Buffer	5 Year Warranty	
	2.0 GB	**Atlas**		785	845
	8ms Seek	7200 RPM	1024K Buffer	5 Year Warranty	
	4200 MB	**Grand Prix**		985	1095
	8.6 ms Seek	7200 RPM	512K Buffer	5 Year Warranty	
√	**4.3 GB**	**Atlas**		1075	1135

Featured Products

IBM *540 MB Powerbook Drive*	*$285*	*$365*
IBM TravelStar12 ms Seek 4900 RPM 128K Buffer 1Year Warranty		
IBM 540 MB DeskStar	*$195*	*$255*
IBM540, 4500 RPM, 9ms seek, 128K cache, 5 year warranty		
IBM 1.2 GB DeskStar With MR Heads... FAST!	*$285*	*$345*
IBM 31080, 5400RPM, 8.9 ms seek, 5 year warranty		
Fujitsu 2.1GB	*$685*	*$745*
F2915s, 7200RPM, 9ms seek, 5 year warranty		
Quantum Atlas 4.0GB	*$1075*	*$1135*
Q34301, 7200, 8.6ms seek, 512K cache, 5 year warranty		
Seagate 9.0GB	*$2045*	*$2145*
ST410800, 5400RPM, 11ms seek, 512K cache, 5 year warranty.		

90 Day Performance Guarantee on all ProDirect Hard Drives... Call !

Seagate

1.2 GB Hawk				$385	$445
9 ms Seek	5400 RPM	512 KBuffer	5 Year Warranty		
2.4 GB Hawk				785	845
9 ms Seek	5400 RPM	512K Buffer	5 Year Warranty		
2.5 GB Barracuda 2				785	845
8 ms Seek	7200 RPM	1024K Buffer	5Year Warranty		
4.3 GB Barracuda 4				1275	1335
8 ms Seek	5400 RPM	1024K Buffer	5 Year Warranty		
2.5 GB Fast & Wide Barracuda 2				885	985
8 ms Seek	7200 RPM	1024K Buffer	5 Year Warranty		
4.3 GB Fast & Wide Barracuda 4				1345	1445
8 ms Seek	7200 RPM	1024K Buffer	5 Year Warranty		
9.0 GB Elite				2025	2125
11 ms Seek	5400 RPM	512K Buffer	5 Year Warranty		
9.0 GB Fast & Wide Elite				2195	2325
11 ms Seek	5400 RPM	512K Buffer	5 Year Warranty		

90 Day Performance Guarantee on all ProDirect Hard Drives... Call

MICROPOLIS

	Capacity			Int.	Ext
√	**2.1 GB** • *Also Available in Fast & Wide SCSI 2*			695	755
	Fast SCSI 2 8 ms Seek	7200 RPM	512K Buffer	5 Year Warranty	
	4.3 GB • *Also Available in Fast & Wide SCSI 2*			1060	1140
	Fast SCSI 2 8 ms Seek	7200 RPM	512K Buffer	5 Year Warranty	
	9.0 GB • *Also Available in Fast & Wide SCSI 2*			2045	2145
	Fast SCSI 2 11 ms Seek	5400 RPM	512K Buffer	5 Year Warranty	

GOLD Series AV Drives *Recommended most for AV work*

2.1 GB • *Also Available in Fast & Wide SCSI 2*				745	805
Fast SCSI 2 8.5 ms Seek	7200 RPM	512K Buffer	5 Year Warranty		
4.3 GB • *Also Available in Fast & Wide SCSI 2*				1170	1230
Fast SCSI 2 8.5 ms Seek	7200 RPM	512K Buffer	5 Year Warranty		
9.0 GB • *Also Available in Fast & Wide SCSI 2*				2145	2245
Fast SCSI 2 11ms Seek	5400 RPM	512K Buffer	5 Year Warranty		

All Micropolis hard drives are covered by a 5 year advance replacement warranty. If at anytime during the warranty period your drive should fail it can be replaced in 24 hours. ***NO WAITING FOR REPAIRS!***

IBM

IBM drives utilize IBM's advanced Magneto-Resistive(MR) disk technology which increases the amount of data stored per disk surface and reduces the number of disks and heads making the IBM series more slim-lined , reliable & Faster

530 MB				$175	$235
9 ms Seek	4500 RPM	256K Buffer	3 Year Warranty		
1.2 GB				285	345
11 ms Seek	5400 RPM	512K Buffer	3 Year Warranty		
2.1 GB				685	745
8.5ms Seek	7200 RPM	1024K Buffer	5 Year Warranty		
4.2 GB				1075	1135
8ms Seek	7200 RPM	1024K Buffer	5 Year Warranty		

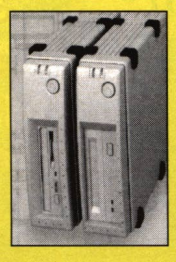
	540 MB			$175	$235
	9 ms Seek	5400 RPM	128K Buffer	5Year Warranty	
√	**1.2 GB DeskStar**			265	325
	11 ms Seek	4500 RPM	512K Buffer	5 Year Warranty	
	2.2 GB UltrStar			755	815
	8.5ms Seek	7200 RPM	1024K Buffer	5 Year Warranty	
	4.3 GB UltrStar			1355	1405
	8ms Seek	7200 RPM	1024K Buffer	5 Year Warranty	
	5.3 GB UltrStar			1375	1435
	8ms Seek	5400 RPM	1024K Buffer	5 Year Warranty	

Powerbook Drives

127 MB *Quantum Daytona*				$119
17 ms Seek	4500 RPM	128K Buffer	1 Year Warranty	
√ **341 MB** *Quantum Daytona*				195
17 ms Seek	4500 RPM	128K Buffer	1 Year Warranty	
514 MB *Quantum Daytona*				295
17 ms Seek	4500 RPM	128K Buffer	1 Year Warranty	
540 MB IBM TravelStar				285
12 ms Seek	4900 RPM	128K Buffer	1 Year Warranty	
850 MB IBM TravelStar				Call
12 ms Seek	4900 RPM	128K Buffer	1 Year Warranty	
1.2 GB IBM TravelStar				Call
12 ms Seek	4900 RPM	128K Buffer	1 Year Warranty	

SyQuest TECHNOLOGY

Capacity	Model	Seek	External
88 MB	SQ5110C	20 ms	$345
135MB	SQEZ135	13.5ms	225
200 MB	SQ5200	18 ms	395
270 MB	SQ3270	13.5 ms	405



Genuine SyQuest Media

Capacity	Model	Price
44 MB	SQ400	$40
88 MB	SQ800	45
105 MB	SQ310	34
135 MB	SQ135	19
200 MB	SQ2000	70
270 MB	SQ327	58

Memory Products

CALL FOR THE BEST PRICES

PCI & Nubus SCSI Accelerators

Atto

Silicon Express 2 **$295**
SCSI1 & 2 support,transfer rates up to 100 MB/sec,supports multiple block sizes,takes advantage of parallel processing capability by transferring data directly between the Mac RAM and the SCSI bus! Ideal for graphic design,multimedia applications,software design, and more!

Silicon Express 4 **795**
Fast/Wide (16Bit) SCSI-2 accelerator card for Apple's Nubus based computers. Supports Fast/Wide SCSI 2 (16 Bit) transfer rates up to 20MB/sec., and fast SCSI-2 (8 Bit) transfer rates up to 10MB/sec. Full 16 Bit WIDE support for the latest drives and disk arrays . Fully compatible with all existing SCSI-1 drives . Formatting software is included. 5 Year Warranty.

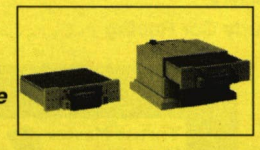
Express PCI **335**
single channel, RISC based, PCI to Fast/Wide SCSI-3 accelerator card for Apple's PCI based computers. Ideal solution for your audio, video, prepress, and real time applications. Transfer rates up to 20MB/sec. Formatting software is included. 5 Year Warranty.

Remus RAID Software **195**
Need speed? Double it with Remus Limited software....Ideal for AV applications. Call for details...Remus Full software also available.

Customized PLUG & PLAY RAID Solutions available for all music and video editing programs. All Hard Drive firmware revisions compliant per manufactures specification Call one of our AV consultants to build one today. Best Price... Always!

MICRODISK LT *3.5"Stackable Disk Subsystems, Super Capacity External Storage*

MDAV2100 **2.1 GB**
MDAV4300 **4.3 GB**
MDAV9100 **9.1 GB**
Fast & Wide Configurations are also available



Tape Backup Drives

Retrospect 3.0 and 1 tape included with all ProDirect tape drives.

BACKUP BY DANTZ RETROSPECT

HEWLETT PACKARD

Capacity	Model	Media	Int.	Ext.
2.0 GB	35470	4mm	$925	$985
3-5 GB	35480	4mm	995	1055
4-10 GB	1533A	4mm	1235	1295
24-60 GB	1553A		3195	3295

CONNER

Capacity	Model	Media	Int.	Ext.
2-4 GB	CTD4004	4mm	739	779
4- 8GB	CTD8000	4mm	939	989
20-50 GB	4586 Auto Tape Loader		2095	2195

Exabyte

Capacity	Model	Media	Int.	Ext.
2-5 GB	8205XL	8mm	$1395	$1485
7-14 GB	8505XL	8mm	2055	2115

8:00am - 7:00pm (CST) Mon.-Fri.
10:00 am - 3:00 Saturday

All prices are subject to change without notice. Returned products are subject to a restocking fee. International customers pay all shipping charges. All shipping charges are non-refundable. To return merchandise call for an RMA number. All RMAs must be returned within 10 business days of issuance. Customers are responsible for all returned product

ProDirect, Inc. 6824 Washington Avenue South, Eden Prairie, MN 55344

Mac Xtra Discounts

CALL FOR OUR FREE CATALOG!

1-800-553-4230

MAC Xtra DISCOUNTS

FAX your order!
206-746-5324

International:
206-746-3803

MEDIA

SYQUEST	
EZ135MB SYQUEST CARTRIDGE	$19
EZ135MB SYQUEST CART. -10 PK.	$180
44MB SYQUEST CARTRIDGE	40
88MB SYQUEST CARTRIDGE	45
105MB SYQUEST CARTRIDGE	52
200MB SYQUEST CARTRIDGE	73
270MB SYQUEST CARTRIDGE	56
VERBATIM	
3.5" 128MB OPTICAL	21
3.5" 230 MB OPTICAL	28
RECORDABLE CDROM 74MIN/640MB	8
RECORDABLE CDROM 74MIN/640MB-10 PK.	75
VERBATIM 2SDD 3 1/2 10PK DISK	7.50
VERBATIM 4MM/60M DATA CART	7
VERBATIM DATA 4MM DC 295 FT	9.50
VERBATIM DATA 8MM DC 367 FT	7
VERBATIM DC 2120 120MB QIC80	12.50
VERBATIM EP-S HIGH YIELD TONER	60
VERBATIM EP-N TONER CART	89
VERBATIM EP-L TONER CART	59
VERBATIM ANTI-GLARE FILTER 14/15"	33
IOMEGA ZIP	
ZIP 100 MB CARTRIDGE	19
ZIP 100 MB CARTRIDGE - 10 PACK	139
ZIP 100 MB CARTRIDGE - 3- PACK	49.50

IOMEGA JAZ	
JAZ 1GBCARTRIDGE	$123
JAZ 1 GB CARTRIDGE - 5 PACK	490
JAZ 540MB CARTRIDGE	69
JAZ 540MB CARTRIDGE - 5 PACK	294
TDK AUDIO PRODUCTS	
120 Min. High Standard	2.50
120 Min. Extra High	3.25
120 Min. Hi-Fi Grade	3.50
120 Min. Super-VHS	6.90
30 Min. Extra High VHS-C	3.99
120 Min. 8 MM High Standard	4.25
120 Min. 8 MM Extra High	4.75
120 Min. Hi-8 Metal Evaporate	13.99
SONY Batteries	
D2 Pack	2.99
C2 Pack	2.99
AA 2 Pack	2.49
120 Min High Grade / 4 Pk	5.90 / $20
120 Min Hi-8 Metal Evap/4 Pack	14 / $48
120 Min Hi--8 Metal Part/4 Pk.	8.99/33.99
SONY VHS Tapes	
120 Minute	$3.00
120 Minute 4 Pack	$11
160 Minute	$3.50
120160 Minute Super	8.50 / $10
120160 Minute Super	8.50 / $10
SONY CD-RECORDABLE	
RECORDABLE CDROM 74MIN/640MB	8
RDABLE CDROM 74MIN/640MB-10 PK.	73

SONY BETA Tapes (limited availability!)	
500 / 750 Meter Lgth	3.50 / 3.50
750 Meter Lgth High Grade	4.00
500 Meter Lgth Metal	15.99
CABLES	
POWERBOOK TO HARD DRIVE CABLE	37
MODEM CABLE 6'PLUS/SE/II	7
SCSI CABLE M50-50 6' CABLE	19
SCSI M50-M50 18 CABLE	9
SCSI TERMINATOR	15

MEMORY

As Low As $30!

Standard 30-pin SIMMs		
1MB 100NS	8001	$30
1MB 80/70NS	8000/8007	31/33
2MB 80/70NS	2000/2007	65/74
4MB 80/70NS	4000/4070	120/133
8MB 70NS	8888	320
16MB 70NS	1601	585
30-pin , 36 bit SIMMs		
1MB 70NS	9070	$42
4MB 70NS	9007	155
4MB PAL SIMMs for II,IIx		
4MB 80/70NS	4100/4107	$138/140
64-pin SIMMs for IIfx		
1MB 80/70NS	8080/8070	$38/38
4MB 80/70NS	4080/4087	152/154
8MB 70NS	N8887	365
16MB 70NS	N1680	665
72-pin SIMMs		
4MB 70/60NS	4032/4632	$105/110
8MB 70/60NS	8032/8632	225/228
16MB 70/60NS	16732/16602	427/446
32MB 60NS	32632	935

2-pin, 36 bit SIMMS		
4MB 70NS	43670	$162
8MB 70NS	83670	339
16MB 70NS	163670	550
32MB 70NS	323670	1220
168-pin DIMMs		
4MB 70NS	4764	$151
8MB 70NS	8764	237
16MB 70NS	16764	459
32MB 70NS	32764	968
64MB 70NS	64764	2192
PB 5300 Series		
8MB RAM	PB5300-8	297
12MB RAM	PB5300-12	534
16MB RAM	PB5300-16	581
32MB RAM	PB5300-32	1172
PB 190 Series		
4MB 70NS	NPB190-4	$207
8MB 70NS	NPB190-8	368
12MB 70NS	NPB190-12	507
16MB 70NS	PB190-16	722
32MB70NS	PB190-32	1199
PB500 Series		
4MB RAM	PB/BB-4	$153
8MB RAM	PB/BB-8	297
16MB RAM	PB/BB-16	576
32MB RAM	PB/BB-32	1157
PBDUO 210/230 SERIES		
PB DUO-4MB MEMORY UPGRADE		$165
PB DUO-8MB MEMORY UPGRADE		297
PB DUO-12MB MEMORY UPGRADE		473
PB DUO-14MB MEMORY UPGRADE		543
PB DUO-20MB MEMORY UPGRADE		777
PB DUO-28MB MEMORY UPGRADE		1161
FPU's/Math CoProcessors/VRAM/CACHE		
Centris FPU 25MHz	ST04025	$299
FPU 33MHZ DUO/P600	DUOp600 33MHz	51
FPU Color Classic 16MHZ	CLRCL 16MHz	42
LC575 33MHZ Mth CoProc	ST04033	350
PowerMac 6100, 7100, 8100 VRAM/CACHE		
256K 80NS Video RAM	1516	$17
512K Video RAM	1500	22
256K Cache Cd. 6100, 7100	PM256	105
512K Cache Cd. 6100, 7100	PM512	279
1MB Cache Cd. 6100, 7100	PM1MG	789
PowerMac 72/75/85/9500 VRAM/CACHE		
1MB VRAM 7200/7500/8500	1517	65
2MB Video RAM PM9500	N7VR2MB	229
256K CACHE DIMM	PMPCI256	176
512K CACHE DIMM	PMPCI512	449
POWERBOOK BATTERIES		
PB 100 BATTERY/CHARGER		44/111
PB 140-180C BATTERY		57

MODEMS

GLOBAL VILLAGE	
TELEPORT PLATINUM 28.8 V.34	$203
POWERPORT 1XX PLATINUM 28.8 V.34	337
POWERPORT PLATINUM CARD 28.8	349
POWERPORT PLATINUM CARD PRO	519
US ROBOTICS	
US ROBOTICS 28.8 V.34 INTERNET BUNDLE	209
US ROBOTICS 14.4 EXT	117
ZOOM	
ZOOM 2400 BPS MODEM	65
ZOOM V.FAST 28.8	189
ZOOM VFX 14.4 V.32BIS S/R FAX	169
ZOOM VFXV 14.4 V.32BIS W/VOICE	147
ZOOM 14.4 EXTERNAL	79
SUPRA	
SUPRAEXPRESS 28.8 EXT V.34	178
SUPRA 14.4 EXPRESS	98
SUPRA 28.8 PB FAX/MODEM	236
SUPRA 28.8 V.34 S/R Fax Modem	222

Supra Express 28.8 Plus $178!

MONITORS/VIDEO

MONITORS	
SUPERMATCH PRESSVIEW 21T	3249
SUPERMATCH 21TXL	2245
RADIUS PRECISION VIEW 17"	1005
PRECISION COLOR PIVOT	875
PRECISIONCOLOR 17 RADIUS	1095
INTELLICOLOR 20E	2189
NEC MULTISYNC XV14/15/17	349/479/839
NEC MULTISYNC XE15/17/21	599/1099/1969
NEC MULTISYNC XP17/21	1149/2379
VIDEO	
PRECISIONCOLOR PRO 24X NUBUS	1165
PRECISIONCOLOR PRO 24XK NUBUS	825
THUNDER IV GX-1360 RADIUS	1875
THUNDER IV GX-1152 RADIUS	1635
THUNDER IV GX-1600 RADIUS	2040
RADIUS THUNDER 24 GT	490
SPIGOT POWER AV	820

DRIVES

APPLE EXTERNAL DRIVES	
APPLE 540MB	315
APPLE 730MB	389
APPLE 850MB	409
APPLE 1.0GB	449
APPLE 2.0GB	925
QUANTUM DRIVES	
Q1080 EXTERNAL FIREBALL	349
Q540MB EXTERNAL FIREBALL	259
Q850MB EXTERNAL TRAILBLAZER	279
Q GRAND PRIX 4.2GB 8.6MN	1195
Q GRAND PRIX 2.1GB	865
SYQUEST	
SYQUEST EZ135 W/CARTRIDGE	235
EZ135MB CARTRIDGE	19
IOMEGA DRIVES	
ZIP DRIVE/100MB ZIP CARTRIDGE	199/19
JAZ 1.0GB DRIVE/1.0GB CARTRIDGE	605/123
FWB	
2X CD RECORDER/WRITER	1485
4X CD RECORDER/WRITER	3035
NEC	
6XE MULTI-SPIN CD-ROM DRIVE	519
RUMI CD-ROM DRIVES	
RUMI CD-ROM DRIVE - MS	142
RUMI CD4X DRIVE W/10 CD'S AND SPEAKERS	280
RUMI SYQUEST	
RUMI 88MB SYQUEST W/CART	369
RUMI 105MB SYQUEST W/CART	314
RUMI 200MB SYQUEST W/ CART	479
RUMI 270MB SYQUEST W/CART	479

ACCELERATORS

DAYSTAR	
PowerPro 601 80MHz w/RAM Cache	$1441
PowerPro 601 100MHz w/Cache	1231
Turbo 040 40MHz w/Cache	709
Turbo 040i 33MHz w/Cache No FPU	605
Turbo 601 66MHz for IIci, IISi W/Adpt	851
Turbo 601 66MHz IIvx, IIvi, P600	851
Turbo 601 100MHz for IIci, IISi W/Adpt	1231
Turbo 601 100MHz IIvx, IIvi, P600	1231
PowerCard 601 100MHZ - *NEW!*	946
SONNET TECHNOLOGY	
Allegro LC II 33MHZ LCII,Perf.400,405,410,430	$144
Allegro Mac II 33MHZ Mac II	$178
Allegro Mac IIx 33MHZ Mac IIx, SE/30	$178
Allegro SE-33 33MHZ Mac SE	$188
Budget Booster 25MHZ Mac LC	$94
Presto 040 LC 50/25MHZ Mac LC/LC II/Perf. 400,405,410,430	$198
Presto 040 LC 50/25MHZ Mac LC/LC II/Perf. 400,405,410,430	$298
Presto 040 80/40MHZ Mac IIci, IISi, IIx, IIcx	$298
Presto 040 80/40MHZ Mac IIci, IISi, IIx, IIcx (w/cache/FPU)	$398
Presto 040 80/40MHZ Mac IIci, IISi, IIx, IIcx	$398
Presto 040 80/40MHZ Mac IIci, IISi, IIx, IIcx (w/cache/FPU)	$498
*Presto Adapter	$55

NETWORKING

FARALLON	
ETHERWAVE NUBUS OR LC	184
ETHERWAVE AUI TRANSCEIVER	104
ETHERWAVE AAUI TRANSCEIVER	104
ETHERWAVE PRINTER ADAPTER	179
ETHERMAC LC-C	158
DAYNA	
DAYNAPORT CS-T (10BASE-T)	$79
DAYNAPORT CS-T 5 PAK (10BASE-T)	360
DAYNA MINI-HUB F-T	122
DAYNAPORT E/II - T NUBUS 10-T	105
ASANTE	
MACCON + 610E ENET THICK/10BASE-T	169
MACCON+ 610 THICK/THIN/10BASE-T	197
MC+610E CENTRIS TH/TN	189
FRIENDLY NET ADAPTER THIN55	
FRIENDLY NET ADAPTER THICK69	
10-BASE-T HUB WITH 8THIN PORT	145

Overnight Delivery $7 and up
Prices Subject to change without notice
UPS Ground $6 and up
Returns Subject to Approval & Restocking Fee
MasterCard, VISA & Discover, no surcharge
Office Hours: M-F, 7am to 6pm; Sat., 9am to 4pm, PST

MAC Xtra 1075 Bellevue Way NE, Suite 114 Bellevue, WA 98004 - Phone (206) 746-3803

WK012296

DIRECTTech SYSTEMS INC.

CALL: 1-800-279-5520

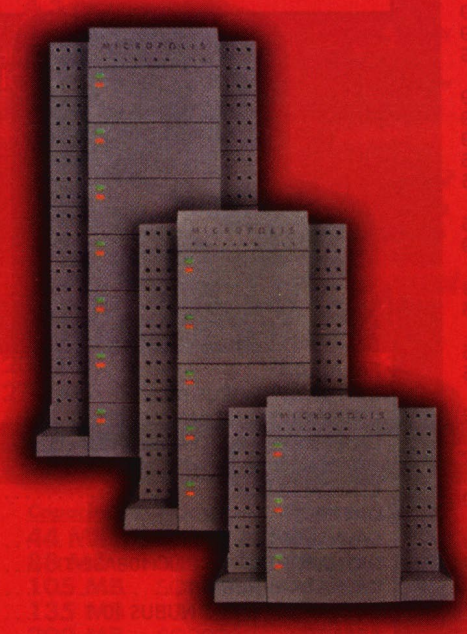
YOUR #1 SOURCE FOR STORAGE

CALL FOR LATEST PRICES

THE (STACKABLE) PHASER LINE OF ENCLOSURES, FEATURING ACTIVE TERMINATION

THE DIRECTTECH ADVANTAGE!

All Phaser-I Enclosures feature ACTIVE Termination, the latest in termination technology. Put an end to your SCSI headaches. DIRECTTECH'S active termination monitors and regulates your SCSI chain and eliminates any termination problems.



MICROPOLIS MICRODISK LT & LS

THE STACKABLE, REMOVABLE DRIVE SUBSYSTEM

Model #	*Capacity*
MDLT2100/AV	2.1 GB
MDLT4300/AV	4.3GB
MDLS9100/AV	9.1GB

NOW AVAILABLE IN FAST/WIDE CONFIGURATION.
ASK ABOUT THE MICRODISK RAID 5 ARRAY!

CALL FOR LATEST PRICING AND CONFIGURATION.

HARD DRIVES

ALL DRIVES ARE PREFORMATTED, TESTED AND PACKAGED WITH SCSI MANAGER 4.3 COMPATIBLE DRIVERS. EXTERNAL DRIVES INCLUDE CHOICE OF 25-50 OR 50-50 PIN CABLE.

Capacity	*Model No.*	*Mechanism*	*Seek*	*Warranty*	*Internal*	*PHASER-I*
420 MB	DT-420TB	Quantum	11ms	2 yrs	$150	$225
850 MB	DT-850TB	Quantum	11 ms	2 yrs	$199	$275
1.0 GB	DT-1080FB	Quantum	11ms	3 yrs	$275	$350
1.05 GB	DT-31230	Seagate NEW LOW PRICE!	9.0 ms	5 yrs	$380	$455
2.0 GB	DT-4221	Micropolis NEW LOW PRICE!	8.0 ms	5 yrs	$685	$760
2.0 GB	DT-32150	Quantum -Atlas	8.5 ms	5 yrs	$895	$970
2.0 GB	DT-2490	Hewlett Packard	9.0 ms	5 yrs	$1,100	$1,185
2.1 GB	DT-32550	Seagate Barracuda II NEW LOW PRICE!	8.0 ms	5 yrs	$775	$850
4.3 GB	DT-3243	Micropolis NEW LOW PRICE!	8.5 ms	5 yrs	$1,025	$1,099
4.3 GB	DT-15150	Seagate Barracuda NEW LOW PRICE!	8.0 ms	5 yrs	$1,199	$1,275
4.3 GB	DT-4280	Quantum	8.0 ms	5 yrs	$1,025	$1,100
9.0 GB	DT-1991	Micropolis NEW LOW PRICE!	12 ms	5 yrs	$1,950	$2,050
9.0 GB	DT-410800	Seagate Elite 9 NEW LOW PRICE!	11 ms	5 yrs	$2,025	$2,125

AUDIO/VIDEO TUNED DRIVES

DIRECTTECH SYSTEMS IS AN AUTHORIZED A/V PARTNER WITH SEAGATE AND MICROPOLIS.

Capacity	*Model No.*	*Mechanism*	*Seek*	*Warranty*	*Internal*	*PHASER-I*
1.05 GB	DT-31230AV	Seagate	9 ms	5 yrs	$380	$455
2.0 GB	DT-4221AV	Micropolis NEW LOW PRICE!	8.5 ms	5 yrs	$735	$810
2.1 GB	DT-32550AV	Seagate Barracuda	8.0 ms	5 yrs	$775	$850
4.3 GB	DT-3243AV	Micropolis NEW LOW PRICE!	8.5 ms	5 yrs	$1,075	$1,150
4.3 GB	DT-15150AV	Seagate Barracuda	8.0 ms	5 yrs	$1,199	$1,275
9.0 GB	DT-1991AV	Micropolis NEW LOW PRICE!	12 ms	5 yrs	$2,050	$2,150
9.0 GB	DT-410800AV	Seagate Elite 9 NEW LOW PRICE!	11 ms	5 yrs	$2,025	$2,125

FAST/WIDE SCSI DRIVES

MOST EFFECTIVE WHEN COMBINED WITH A FAST/WIDE ATTO BOARD. CALL FOR SPECIAL CONFIGURATIONS!

Capacity	*Model No.*	*Mechanism*	*Warranty*	*Internal*	*PHASER-I*
2.1 GB	DT-32550W	Seagate Barracuda 2LP Wide	5 yrs	$835	$910
2.1 GB	DT-4221W	Micropolis 4221Wide	5 yrs	$775	$850
4.3 GB	DT-15150W	Seagate Barracuda 4 Wide	5 yrs	$1,250	$1,325
4.3 GB	DT-3243W	Micropolis 3243Wide	5 yrs	$1,100	$1,275
9.0 GB	DT-1991W	Micropolis 1991Wide	5 yrs	$2,185	$CALL
9.0 GB	DT-1991AVW	Micropolis 1991AVWide	5 yrs	$2,285	$CALL
9.0 GB	DT-410800W	Seagate Elite 9 Wide	5 yrs	$CALL	$CALL

DISK ARRAYS/RAID

MEDIA 100 * RADIUS * DIGITAL VIDEO * TARGA 2000
ARRAYS INCLUDE - ATTO CARD, REMUS & 2 FAST/WIDE DRIVES

Capacity	*Model No.*	*Mechanism*	*Seek*	*Warranty*	*EXTERNAL*
4.0 GB	DT-32550W-2	Seagate - Fast/Wide Barracuda 2LP (2)	4.0 ms	5 yrs	$CALL
8.0 GB	DT-3243WAV	Micropolis - Fast/Wide 3243AV (2)	4.0 ms	5 yrs	$CALL
18.0 GB	DT-1991WAV	Micropolis - Fast/Wide 1991AV (2)	4.0 ms	5 yrs	$CALL
CALL FOR MORE INFORMATION ON DIRECTTECH DISK ARRAYS!					
ATTO Silicon Express IV		Nubus Fast/Wide Accelerator			$CALL
ATTO Express PCI		Dual Channel - PCI -Fast/Wide			$CALL
ATTO Express PCI		Single Channel - PCI-Fast/Wide			$CALL

SYQUEST

INCLUDES ANUBIS FORMATTING SOFTWARE AND ONE CARTRIDGE

Capacity	*Model No.*	*Internal*	*PHASER-I*
88 MB	SQ5110C	$305	$365
200 MB	SQ5200	$420	$480
270 MB	SQ3270	$420	$470

CD ROM RECORDABLE

JVC Personal Archiver (2X)	$1,165
JVC Personal Archiver (4X)	$2,499

JVC External CD Recorders include cables, terminator, 2 Blank CD's and Software.

NEW JVC PRICING

TAPE

INCLUDES A FREE COPY OF RETROSPECT AND ONE TAPE

Capacity	*Model No.*	*Format*	*PHASER-I*
2 GB	HP-35470	4mm	$950
4-8 GB	Sony-5000	DDS-2	$999
4-8 GB	HP-1533A	DDS-2	$1,299
5-10 GB	Exabyte-8505	8mm	$2,150
15-30 GB	DLT-2000XT	DLT	$4,399

OPTICAL

INCLUDES ANUBIS FORMATTING SOFTWARE AND ONE CARTRIDGE

Capacity	*Model No.*	*Seek*	*PHASER-I*
230 mb	Fujitsu	30 ms	$675
1.3 GB	HP-C1716	23 ms	$2,099
1.3 GB	Maxoptix T-III	18 ms	$2,199

MEDIA

Type	*Price*
Syquest 44	$40
Syquest 88	$46
Syquest 105	$54
Syquest 200	$76
Syquest 270	$60
Optical 128 MB	$22
Optical 230 MB	$30
Optical 1.0 GB	$100
Optical 1.3 GB	$90

CALL FOR QUANTITY PRICING!

MICROPOLIS
Seagate
HEWLETT PACKARD
Quantum
SyQuest
JVC

ASK YOUR SALES REP ABOUT DIRECTTECH'S NEW WARP POLICY. (WARRANTY ADVANCED REPLACEMENT PROGRAM

VISA MasterCard AMERICAN EXPRESS

No charge for Visa, Mastercard or Amex

Government, Corporate, and University P.O.s Welcome!

- 30-day money-back guarantee on all drives.
- Refused orders subject to restocking fee.
- RMA No. required for all returns.

Prices, terms, and availability are subject to change without notice.

All tradenames and trademarks are the property of their respective companies.

INTERNATIONAL ORDERS CALL:
PHONE: (612) 941-2616
FAX ORDERS: (612) 942-0430

DirectTech Systems, Inc. 7625 Golden Triangle Drive, Suite R Eden Prairie, MN 55344

MarketPlace

THE SOURCE FOR DIRECT BUYERS OF MACINTOSH PRODUCTS, SERVICES AND INFORMATION

ADVERTISERS' INDEX

Hardware
(Includes Bar Coding, Boards, Communications/Networking, Computer Systems, Peripherals, Used Equipment)

Automated Information Systems....96
Boxlight Corporation....93
Chip Merchant....90
Compu America....96
Compu Concepts....95
Computer Guys....95
Data Computer Center....96
Data Memory Systems....95
Datatech Remarketing....100
Diamond Computer Resources....95
Dvc/Digital Video Concepts....90
Eritech International....95
GE Capital CRS....100
Hawke Business....100
ICN....99
Infinity Micro Computers....98
Innovative Micro Products....95
Kelley Computers....98
LA Computer Center....91
Mac 1 International....98
Mac Base....92
Mac Brokers....98
Mac Net....92,98
Mac Powerhaus....90
Mac Rentals....100
Mac Resq....98
Mac Sale International....94
Mac Solutions....95
Mac USA....99
Macadapt....99
Macstorm International....96
Macworks....98
Maxed Systems....100
Media Guide....98
Media Store....99
Memory Merchants....99
Micro Products....95
MPD....92
Other World Computing....99
Peripheral Outlet....88
Peripherals & Systems 4 Export....99
Pre-Owned Electronics....100
Que Computers....98
Rapidata....100
Right Computer....98
Shreve Systems....97
Simm Saver Technologies....90
Sonnet Technologies....90
Source Computing....95
Syzygy Electronics, Inc....88
Tahoe Peripherals....89
T.D. Curran....99
Upgrade and Go....95
V.L. Promac....98
VST Power Systems....93
World Micro Systems....98
Xlr8....95

Software
(Includes Bar Coding, Business Management, CAD-CAM, Communications/Networking, Desktop Publishing, Education, Finance, General, Graphics, Multimedia)

ACI US, Inc.....93
Cypress Research Corp.....87
Digitool....87
Everyware Development....87
Mark/Space Softworks....100
Vicom Technology....100

Special Services
(Includes Digital Output Services, Disk Duplication, General, Graphics, Programming/Consulting, Rental/Leasing, Repair/Recovery Services, Toner Recharging, Training)

3E Corp....100
800wefixmacs....101
Drivesavers....101
Dt&t Macintosh Services....101
Isomedia....100
Lazarus Data Recovery....101
On Track Data Recovery....101
Tellan Software....100
Total Recall....101

Accessories
Microstore....101
Moustrak....101

CD ROM
RSL Catalogic Corporation....101

Career Opportunities
Group Logic, Inc....101
Macxperts, Inc....101
Nutmeg Mills....101
Scientific Placement....101

ACCOUNT REPRESENTATIVES **800-825-4ADS**

Manuel Fuentes (Asst. Sales Mgr.) ♦ Juan Cail ♦ Chelsea Morroni ♦ Michele Imfeld ♦ Jillian McAlley

Lack
DOCUMENT MANAGEMENT
skills?

here's
A QUICK
brush up

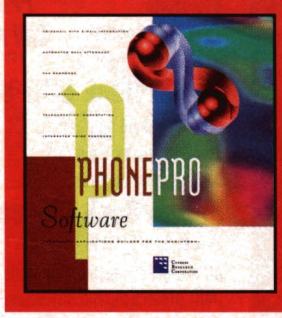
ENTERPRISE
DOCUMENT MANAGEMENT

Group document preparation • Document version tracking • Security through restricted access features • Search with up to 14 document attributes • Fully customizable document categories • Works with all document types.

http://www.everyware.com/
EVERYWARE
7145 West Credit Ave.
Building 1 Mississauga, Ont. L5N 6J7
Tel: 905•819•1173

PhonePro Telephony Application Builder

Create the perfect computer telephony solution for your business with PhonePro™ software, the industry's most powerful, flexible, and professional-sounding telephone solution. PhonePro's unique icon-based scripting language is perfect for building voice messaging systems, information hot-lines, fax response systems, automatic paging systems and more.



- Software available for Apple's GeoPort™ Telecom Adapter, Pleiades Research Digital Storefront™, and voice capable SupraFAXModem V.32bis™ and V.32™
- E-mail connectivity, AppleScript, and Apple events aware.

For more information call our 24 hour information line at 800-CR-INFO1 or call us direct at 408-752-2700

CHECK OUR WEB SITE: www.cypressr.com

Cypress Research Corporation

Macintosh® Common Lisp

The fully dynamic programming environment brought to you by Digitool, Inc. and Apple® Computer, Inc.

- Great Product
  - Automatic memory management - no more leaks!
  - Incremental compiler - no more waiting!
  - CLOS - industry standard object system
  - Full access to Mac Toolbox
  - Fast, efficient 68K code (PPC coming!)
  - Small application builder (MCL-AppGen)
- Great Support
- Great Community
- Great Student Price
  - $135.00

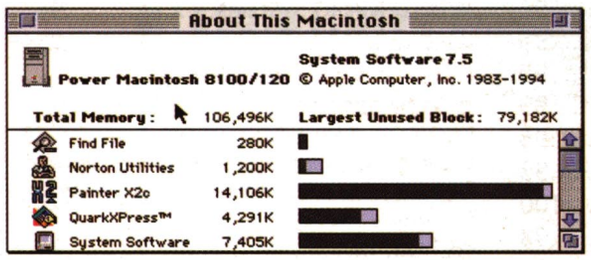
http://www.digitool.com/mcl6.html • ftp://ftp.digitool.com • news:comp.lang.lisp.mcl
mailto:info@digitool.com • tel: 617-441-5000 • fax: 617-576-7680

Premier

MACH 10 JET CPU ACCELERATOR
NEW IMPROVED DESIGN, NEW LOWER PRICE

IS AVAILABLE FOR

- 8100 / 100 (AV)
- 8100 / 80 (AV)
- 7100 / 66 (AV)
- 6100 / 60 (AV)
- Q840AV
- Q800
- Q660AV
- C660AV
- Q650
- C610



- $49 (suggested) to take your 8100/100 to 126MHz!!
- 20-40% acceleration in all CPU tasks
- Reliable, high specification, precision components
- User friendly manual, with many photos
- Full Technical support by qualified engineers
- 30 Day Moneyback guarantee, Lifetime warranty
- Award winning UK design

For a free information disk call any of the dealers listed below.

Dealer and Distributor inquiries invited.

$49

MacUser
31st March 1995 Vol 11 No 7 (UK)

" Bloody Quick " - Mac Format
" Impressive " - MacUser (UK)
" The ideal Solution " - The Mac
" A must " - MacUser (UK)

Distributor DMS Tel: 1-800-662-SIMM (7466) Fax: 508-975-5232 Lawrence MA

Dealer MEMORY TRADERS Tel: 800-315-7807 Fax: 703-522-6626 Arlington VA

Made in The US By: SYZYGY ELECTRONICS Dealer Inquiries Only Tel: 703 522 6624 ext 213 Fax: 703 522 6626

We Buy Used Memory

256K
512K
1MB
2MB
4MB
8MB
16MB
32MB
64MB
VRAM
IIfx SIMMs
PowerBook Duo

We want your used RAM:

- 30 or 72pin
- Any Configuration
- Any Size
- Any Speed
- SIMMs, SIPPs, & Chips
- Working or Broken
- Any Quantity

Best Prices Paid

We sell:

BEST PRICES ON ALL SIMMS

- 30 or 72pin
- DIMMs
- Major Manufacturers Chips
- Lifetime Guarantee
- Free UPS Shipping
- VISA/MC No Fees
- Competitive pricing
- Any Quantity

800 315-7807

MEMORY TRADERS
Tel: 800-315-7807
Fax: 703-522-6626
1117 North 19th St. Suite 1201, Arlington VA 22209

PERIPHERAL
PERIPHERAL OUTLET, Inc.
800/259-8989

See us at MacWorld Expo San Francisco Booth #543

SAVE MONEY!
Peripheral Outlet will buy your old memory at great prices.

TOLL FREE TECH SUPPORT
Our tech support and installation instructions are the best in the industry!
LIFETIME WARRANTY on all memory products
Order by 6:30PM CST for same day shipping*
Overnight delivery from $8.00 *some restrictions apply

PowerBook 5300/190 Memory
4 / 8 Megabyte upgrade ..... 175.00 / 305.00
16 / 32 Megabyte upgrade ..... 589.00 / 1197.00
40 / 48 Megabyte upgrade ..... CALL

72 Pin Memory for the Mac
80ns 70ns 60ns
4 Megabyte
8 Megabyte
16 MB-Non Composite
32 MB-Non Composite
Prices Changing - Call for Best Prices!

PowerBook 500-series Memory
4 / 8 Megabyte upgrade ..... 159.00 / 319.00
16 / 24 Megabyte upgrade ..... 589.00 / 959.00
32 Megabyte upgrade 1179.00

PowerBook 100-series Memory
2, 4, 6, 8, and 10 MB Upgrades - Call for the latest prices!
All PowerBook memory upgrades include necessary tools, static protection, and instructions for safe installation.

Cache Cards, Etc.
Cache Cards for 7200/7500/8500 ..... CALL
256K/512K/1 MB Cache Card for PowerMacs ..... CALL
128K Cache Card for Quadras ..... from 125.00
128K Cache Card for LCIII & Performa 450 ..... 129.00
IIci/IIsi 64K Cache Card 125.00/159.00
Slot-Free Cache Card for LC 475 ..... 195.00
Slot-Free Cache for 660AV, 700, 900, 950 ..... 245.00

168 pin DIMMs for PCI Macs
8 / 16 Megabyte
32 / 64 Megabyte
128 Megabyte
Prices Changing — Call for Best Prices!

Standard 30 pin SIMMs
1, 2, 4, 8, and 16 Megabyte SIMMs
Prices Changing —Call for Best Prices!

Video RAM
1 MB VRAM for 7200/7500/8500 ..... 72.00
2 MB VRAM for ATI Video Card 199.00
256K/512K VRAM 80ns ..... 21.00 / 29.00

68882 Math Coprocessors
68882 25 MHz FPU 49.00
68882 33 MHz FPU 59.00
68882 50 MHz FPU 99.00
25 MHz for Mac LC/LCII/Classic II 55.00
20 MHz w/2 slots for Mac IIsi 119.00

Newton Upgrade Products
512K Static RAM Storage Card 89.00
1 Megabyte Static RAM Storage Card 124.00
2 Megabyte Static RAM Storage Card 235.00
2/4 Megabyte Flash Storage Card ..... 99.00 / 169.00
8 Megabyte Flash Storage Card 299.00
16 Megabyte Flash Storage Card 565.00

Duo-series Memory
4 / 8 Megabyte upgrade ..... 169.00 / 289.00
12 / 14 Megabyte upgrade ..... 440.00 / 496.00
20 / 28 Megabyte upgrade ..... 699.00 / 989.00

Miscellaneous
68040 processors with FPU ..... CALL
LaserWriter 320 2, 4, 6 MB upgrades ..... CALL
LaserWriter Pro 810 4 MB/8 MB upgrades 255/419
T.I. MicroLaser 1 MB 39.00
Mac Classic 1 MB Board 75.00
68851 16MHz PMMU 89.00
if requested, MODE 32 software included free w/PMMU
Mac Portable 3-7 MB Cards ..... CALL

PowerMacintosh Accelerators
Call us for ways to economically increase the speed of any PowerMac by 30-40%!

68030 50 MHz Accelerator $339
MacUser ★★★★½
Speed increases of up to 400% with the DiiMOCache 50MHz 68030 Accelerator. The DiiMO outperforms the DayStar PowerCache 50MHz and also most of the 68040 25MHz accelerators. The DiiMO 50MHz runs on the LC, LCII, LCIII, II, IIx, IIcx, IIci, IIvi, IIsi, SE/30, and the Performa 600/400 series. Call for adapter prices.
DiiMOCache 50MHz Accelerator without FPU $339.00
DiiMOCache 50MHz Accelerator with FPU $399.00

68040 Processor with FPU $229
For the Centris and Quadra 605, 610, 650 and 660AV, and the Performa 475/476 and LC 475.
33MHz for Quadra 650 and LC 575 ..... CALL
40MHz ..... CALL

We accept Visa/MC/Amex/Discover, and COD Cashiers check upon approval. Educational, Government, and Fortune 500 P/Os accepted upon approval. Due to volatility in the market all prices and availability are subject to change without notice.

PERIPHERAL OUTLET, Inc.
327 East 14th, PO Box 2329 • Ada, Oklahoma 74820
405/332-6581 FAX 405/436-2245 AppleLink-PERIPHERAL
Internet - sales@peripheral.com
HOURS: Monday–Thursday 6AM-7PM CST, Friday 6AM-6PM

INTERNATIONAL TOLL FREE NUMBERS FOR DEALERS ONLY:
Japan 0066 33800 120, UK 0800 962 058, Sweden 020 797 857
Norway 800 12698, France 0590 1997, Australia 1 800 122 764
Spain 900 931 089, Switzerland 155 7608, Italy 1 678 77937
Germany 0130 818 983, Netherlands 0602 26638

Tahoe Peripherals

New office hours 6am - 6pm PST

Toll Free 1-800-288-6040

Resellers Welcome Order Line: ext1776 • Gov't Order Line: ext1954 • International Order Line: 001-702-832-3600 • Fax: 702- 832-3611

Kingston TECHNOLOGY CORPORATION

Tahoe Peripherals promotes strong Kingston brand programs and understands the specific needs of the Macintosh user.

From technical support to product evaluation to hassle free warranty, Tahoe Peripherals positions com[petitive Kingston solutions to meet the growing needs of its educational and corporate market place

Tahoe Peripherals offers Kingston Memory, Processor, Network & Storage upgrades.

Memory

168 Pin DIMM Modules
For PowerMac 9500 (60ns per Apple spec)

8Mb	$259
16Mb	$489
32Mb	$950
64Mb	$CALL

PowerMac DIMM Cache Memory
Mac 6100 & 7100

256k	2nd level	$150
512k	2nd level	$255

PowerBook 500 /530 /190
(uses self refresh DRAM)

Kingston 4Mb	$204
Kingston 8Mb	$329
Kingston 16Mb	$647
Kingston 24Mb	$966
Kingston 32Mb	$1284

VRAM DIMM

1Mb	$72
2Mb	$179

72 Pin Mac SIMMs
All PowerMacs 6100, 7100, 8100; Quadras; Centris; Performas; LC series

4Mb (1x32 - 70/60)	$115
8Mb (2x32 - 70/60)	$235
16Mb (4x32 - 70/60) True 2K refresh	$455
32Mb (8x32 - 70/60) True 2K refresh	Call- Fantastic Price

PowerMac Cache Memory
Mac 6100 & 7100

256k	2nd level	$136
512k	2nd level	$238

30 Pin Mac SIMMs
Quadra 700, 900, 950; IIvi, vx, IIci, IIsi, SE30, LC II etc...

1x8 - 80	$36
2x8 - 70	$71
4x8 - 70	$129
8x8 - 70	$Call

Kingston Technical Support
714 435-2639

Memory prices may change without notice. Call for latest prices

Scanners

Polaroid

Slide Scanner
Polaroid (35mm slide scanner) up to2700 dpi in under a minute $1549

Polarview LCD Panels
Project Your Workstation Graphics from Computer to screen. LCD Panels project computer or video images in real - time.

HR 2500 New Polarview (1024x768 pixel res.16.7 million colors)	$7999
HR 3000 LCD Ad Planner (16.7million colors: active-matrix TFT technology)	$4299
HR 1800 LCD Panel Line Art (256,000 colors: active-matrix TFT technology)	$3200
HR1500 LCD Ad Planner (256,000 colors: active-matrix TFT technology)	$2400

All the above Panels come with a carrying case

Polaroid Polarview LCD Projectors
Give your presentation impact with Polaroid's new Polaview 105, 95, 90 and LCD Projectors. Computer and /or video graphics directtly onto a meeting room screen.

Polarview 95	$7400	Polarview 85E	$5100
Polarview 80	$5999	Polarview 90	$6100

All Polaroid Accessories available

DAYSTAR® DIGITAL

Accelerator Upgrades

FREE Shipping

Call for details

40/80MHz Turbo 040	$620
66 MHz Turbo 601	$820

For IIci, IIsi, IIvi, IIvx and Performa 600

80 MHz Power Pro 601 w/RAM expansion	$Call
100 MHz Powercard 601	$925
100MHz Turbo 601	$1135
100MHz Power Pro 601	$1185

'TORAY'

Optical Storage Solutions

PHASEWRITER DUAL

Toray's Phasewriter Dual

- the 4X CD-Rom reader and 650Mb rewritable optical storage drive in a single device!

The Phasewriter Dual PD drive is a multimedia desktop system that eliminates the current need for an internal CD-Rom and external add-on storage peripheral by combining the two popular functions - at less than the price of the 2 products.

• 650Mb capacity per cartridge • Advanced Phase Change Rewritable Technology- allows you to write to the same cartride again and again • Quad Speed CD Rom player • SCSI-II • Device software included

Call for latest price

AGFA

FREE Shipping Call for details

Agfa Scanners

Studioscan IIsi (new speed improved)	$949
Studioscan IIsi Transparency Adaptor	$379
Arcus II (models for Mac & PC)	$2499

QMS

Magicolor CX Laser printer series

Call for latest prices

EPSON®

Stylus® PRO XL

Large-format printer Laser printer series

• Photo Quality • Wide Format
• 720 x 720dpi • Exclusive ink Jet Technology

Call for latest prices

Modems

Global Village modems

Global Village TelePort Platinum	$228
Global Village TelePort Gold II	$108
Global Village PowerPort Platinum PB	$320
Global Village PowerPort Mercury PB for the 500 Series and Duo's	$320

FREE Shipping Call for details

Networking

ASANTÉ

We are proud to announce the addition of Asante to our line of quality products.

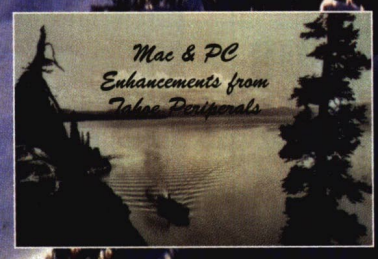
Micro AsantePrint, 10BT	$287
Micro AsantePrint, Thk/Thn/10BT	$287
NuBus MacII/Pref 600 Thk/Thn	$115
NuBus MacII/Pref 600 Thk/10BT	$109
MacLC/Q600 Color Classic Thn	$109
MacLC/Q600 Color Classic 10BT	$90

Gov't Educational & Corporate P.O.'s welcome, terms to qualified customers.

Same Day Shipping

- All product meets or exceeds Apple's original specs.
- All modules use NEW DRAM late 1994 datecode
- All deliveries will be made on promise date or WE PAY shipping.
- All memory modules carry a LIFETIME WARRANTY.

Please CALL for products not listed



Tahoe Peripherals is a wholly owned subsidiary of the Datrontech Group, a publicly traded corporation

All prices reflect cash discount. Prices subject to change without notice. NEVADA residents only must add applicable sales tax.

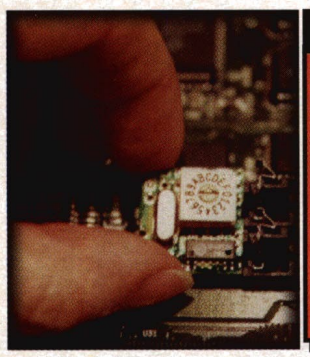
Credit cards are verified for fraudulent use.

MasterCard VISA

Tahoe Peripherals, 999 Tahoe Blvd, # 301 Incline Village, NV 89451

Premier

POWERMAC ACCELERATION



6100, 7100, Performa 611x, 8100/100

- 16 dial-selectable speeds
- Low noise, high output CPU fan
- Detailed manual
- Bench testing software disk
- Requires NO expansion slots
- Installs in under 5 minutes
- NO permanent modification
- Toll-free technical support
- 30-day money-back guarantee
- 1-year warranty

6100 up to 90MHz
Performa 611x up to 90MHz
7100/66 up to 90MHz
7100/80 up to 93MHz
8100/100 up to 126MHz

$79.95

Do not be misled. With thousands sold, accept only the DVC Equalizer™!

Nothing beats the Equalizer. NOTHING! Get the best and forget the rest.

L2 CACHE CARDS

6100/7100/8100/Performa 611X
256K.....$125
512K.....$259
1024K.....as low as.$299

7200/7500/8500
256K DIMM Cache.....$179
512K DIMM Cache.....$289

DVC Equalizer for 9500/8500

- 32 dial-selectable speed settings
- Protection circuit prevents installation damage
- LED light indicates correct installation
- NO permanent modifications
- Requires NO expansion slots

UP TO 175MHz $79.95

7200/7500/8500 VRAM 1Mb.....$89
DIMM Saver/R (SIMM to DIMM converter)...$59
9500/120 VRAM 2Mb.....$175

VISA MasterCard AMERICAN EXPRESS

800.889.5137 DVC

417.889.5113 Phone 417.889.7980 Fax HARDWARE™ E-Mail: DVCBOOSTER@AOL.COM

FedEx All orders delivered next day

SONNET BEST BUYS TO RUN YOUR MAC FASTER

Accelerate Your Mac to 68040 Speed

Sonnet Presto accelerators increase LC and Mac II series performance 200-600%.

	w/FPU	
50/25MHz LC, LC II	$199	$299
80/40MHz IIci, IIsi*	$299	$399
80/40MHz with 128K cache	$399	$499

*Adapter req'd $49 NuBus Adapter IIsi $149

Math Coprocessors for 68040 Macs

If you use CAD, Excel, or rendering programs, you will speed through applications like never before.

25MHz Q605,C/Q610,C650,LC475,P47X	$149*
33MHz LC575,LC630,P57X,P63X	$199*
33MHz PB190,PB52X,PB54X,Duo 280	$399*

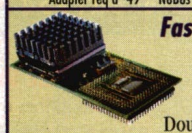
* with LC040 exchange. 68882 upgrades from $49.

Boost Power Mac 8500/9500 to 140-165 MHz

Variable speed to 165 MHz..... $79

256K CACHE
PM 61XX, 7100.....$125
PM 7X00, 8500.....$275

15-40% BOOST
For PowerMac 61XX, 7100 & Quadras.....$59



Fastest Quadra Ever! Plug in a 100/50 MHz 68040 Board and Fly

Double speed with full compatibility.
Works in Quadra/Centris 610, 650, 660AV, 700, 900.
80/40MHz unit for Centris 610.

80/40 MHz.....$249 w/FPU.....$349
100/50 MHz w/FPU.....$399

660AV NuBus Adapters..$99

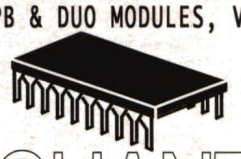
A Fast 68030 Gives Your Older Mac New Life

Give your older Mac more muscle with a Sonnet Allegro accelerator.

25 MHz Classic	1x72pin SIMM slot.....$199
33 MHz SE	4x30pin SIMM slots.....$199
33 MHz Mac II/IIx	Supports RAM Doubler.....$189
33 MHz LC II	Includes FPU & 16K cache.....$149
33 MHz Color Classic	Includes FPU & 16K cache.....$149

MasterCard SONNET TECHNOLOGIES, INC., 18004 Sky Park Circle Irvine, California 92714, 714-261-2800 Fax 261-2461 800-786-6260 Member Better Business Bureau VISA

SIMMs, DIMMs, PB & DUO MODULES, VRAM... SPECIAL ORDERS!



THE Chip MERCHANT

Why should YOU pay for fancy advertising??? Buy *quality* memory, not expensive ads!

For Ordering Call: (800) 808-CHIP Ext. 3

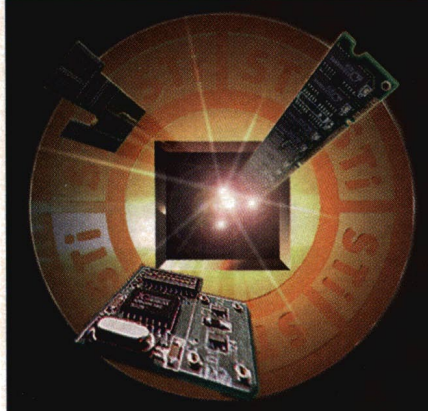
For Information Call: (619) 268-4774
4870 Viewridge Ave., San Diego, CA 92123

LIFETIME WARRANTY !!!
On NEW & USED
SIMMs, DIMMs, & Printer Memory

We also BUYBACK used memory! Call Ext. 7 for details.

(800) 808-2447 (800) 808-CHIP (800) 808-2447 (800) 808-CHIP

SimmSaver Memory Solutions



SimmSaver Technology, Inc. (STI) provides owners of Macs, PowerPCs and PowerBooks with quality memory and performance upgrade solutions, including its own Patent Pending SimmSaver series of adapters. **STI also is now your source for the highly-rated Princeton** line of memory modules, warranted by a Lifetime Guarantee! Call us today for solutions to your memory and performance needs!

NEW! **PRINCETON** memory for every Mac, PowerPC, and PowerBook. Best price/performance, available in EDO.

NEW! **DIMMSAVER/R** is the reversible adapter that converts two 72-pin SIMMs into one 2M, 4M, 8M, 16M, 32M, 64M, 128M DIMM!

NEW! **CLOCKSLIDER** w/thermal fan allows user to increase/decrease CPU performance via software

1-800-636-7281

SimmSaver® Technology, Inc. Tel. (316) 264-2244 • Fax: (316) 264-4445 • http://WWW.solgate.com/sti • E-mail: simmsave@solgate.com

INFLUENCE

"MacWEEK Marketplace works for us because MacWEEK readers call the shots. You could probably multiply the circulation by ten, since MacWEEK readers influence many, many more people in their companies."

—Jay Hagan, Co-Owner, DriveSavers, Inc.

PUT YOUR AD HERE AND WRITE YOUR OWN MacWEEK SUCCESS STORY.
START ADVERTISING NOW! CALL 800-825-4237 TODAY!

Windows® 95 For Your Mac®

For PCI, NuBus and PDS Slots

Specializing in Mac®/Windows® Solutions

Orange Micro
OrangePC 220, NuBus, DX2/66, 4MB w/ DOS.....$798
OrangePC 290, NuBus, DX2/66, 8MB, w/ DOS ...$1575
Windows®NT Available 1/96
PCI version Available 2/96

Model 290 Pictured above

OrangePC®

Reply
DOS on Mac and DOS on PowerMac, starting at...$577

Insignia Solutions
SoftWindows for 040 and PowerMac.....$339
SoftPC for 040, 020 & 030 based Macs.....$139

MacPowerhaus®
PO Box 100, Atwood, CA 92601-0100
(800) 615-3183
(714) 693-3718
FAX (714) 693-3748

LA's LEADING COMPUTER STORE!

LA COMPUTER CENTER

(800) 689-3933 ORDERS ONLY!

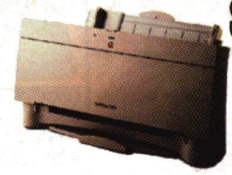
(310) 473-2535 FAX (310) 312-9041

NEW! e-mail us at: lacc@directnet.com

INTERNATIONAL ORDERS WELCOME! Call for Quantity Pricing!

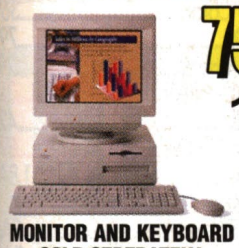
WE WANT TO BUY YOUR NEW & USED APPLE PRODUCTS
UNIVERSITY, SCHOOLS, GOV'T & FORTUNE 1000 P.O.'S ACCEPTED!

CLEARANCE SPECIAL!



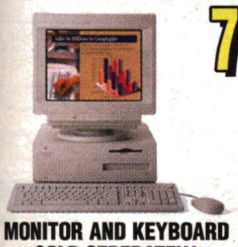
STYLEWRITER
1200 $189
2400 $289

POWERMACS



7500 100MHZ!
16/1GIG/CD
$2649
MONITOR AND KEYBOARD SOLD SEPERATELY.
7500/100 16/500/CD $2449

8500 120MHZ!
16/1GIG/CD
$3699
MONITOR AND KEYBOARD SOLD SEPERATELY.



7100 80MHZ!
8/700
$1249
MONITOR AND KEYBOARD SOLD SEPERATELY.

6100/66	8/500/CD	$1299
6100/66	16/500/CD/DOS	$1999
7100/80	8/700/CD	$1449
7100/80AV	16/700/CD	$1899
8100/100	8/700	$2099
8100/100	16/1GIG/CD	$2399*
8100/100AV	16/1GIG/CD	$2799
8100/110	16/2GIG/CD	$2699
7200/75	8/500/CD	$1369
7200/90	16/500/CD	$1649
8500/120	48/2GIG/CD	$4899
9500/120	16/1GIG/CD	$3169
9500/132	16/2GIG/CD	$3699

APPLE WORKSTATIONS & SERVERS

9150 8/2GIG/CD (80MHZ)	$3299
8150 16/1GIG/CD/DAT (80MHZ)	$2599
8150 8/500/AS (80MHZ)	$2499
8150 16/1GIG/CD/DAT/AS/80mh	$3099
95 32/2GIG/256K/DAT/AS/80mh	$3399

QUADRA

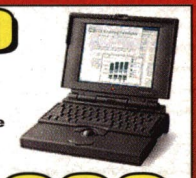
610	8/230/CD	$999*
630	4/250	$749*
650	8/230	$1399*
660AV	8/80	$899*
950	8/0 OR 8/230	$1599/1699
950	16/1GIG/CD	$2199

POWERBOOKS

PowerBook 150

Special Apple Case $29

Award Winning 68030/33Mhz! TrackBall Mouse 9.5" Grayscale Internal Apple SuperDrive 5.5 Lbs. Very Affordable!



SPECIAL w/8MB Ram $999

4/250 $899

POWERBOOK 5300 & 190

5300	8/500	$1749
5300CS	8/500	$2349
5300CS	16/500	$2649
5300CS	16/750	$2949
5300C	8/500	$3149
5300C	16/750	$3699
5300CE	32/1GIG	$5699
190	8/500	$1699
190CS	8/500	$1999

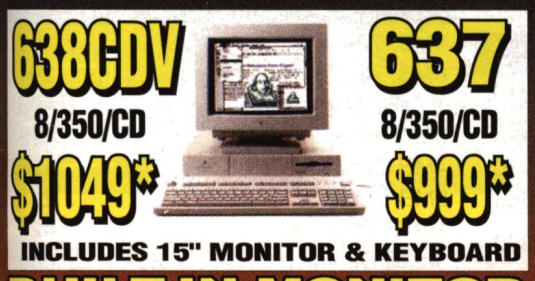
POWERBOOKS

180C	4/160/Modem	$1899*
540	4/240	$1649*
540C	4/320	$2499*
540C	12/320/Modem	$2999*
520	4/160 or 4/240 or 4/240(new)	$1029*/1049*/1099
520C	4/240	$1399*
520C	4/240/Modem	$1599*
520C	12/320/Modem	$1999*

POWERBOOK DUO

Duo 250	4/200	$1299*
Duo 250	12/200/Modem	$1699*
Duo 280	12/240/Modem	$2299
Duo Dock/Duo Dock II		$399*/499*

PERFORMAS

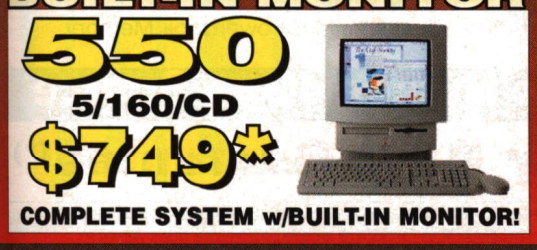


638CDV 8/350/CD $1049*

637 8/350/CD $999*

INCLUDES 15" MONITOR & KEYBOARD

BUILT-IN MONITOR



550 5/160/CD $749*

COMPLETE SYSTEM w/BUILT-IN MONITOR!

630CD	8/250/CD w/14" Monitor	$879*
631CD	8/500/CD w/Monitor	$1299
635CD	5/250/CD CPU ONLY	$799*
636	4/250 CPU ONLY	$699*
640CD	12/500/CD/DOS w/Mon	$1399
5215CD	8/1GIG/CD w/Monitor	$1799
6115CD	8/500/CD w/Monitor	$1199*
6116CD	8/700/CD w/Monitor	$1249*
6116CD	8/700/CD w/Monitor	$1699
6200CD	8/1GIG/CD w/Monitor	$1699
6205CD	8/1GIG/CD w/Monitor	$1899
6220CD	16/1GIG/CD NO Monitor	$1799
6230CD	16/1GIG/CD w/Monitor	$2349
6300CD	16/1GIG/CD w/Monitor	$2499

ORIGINAL APPLE 700MB HARD DRIVE!
INTERNAL $169 EXTERNAL $229

PRINTERS

Color LaserWriter 12/600	$5999
LaserWriter 4/600	$799
LW Personal/SelectI 300	$329*/479
LW Select 320	$599
Select 360 w/Toner	$1149
LaserWriter 16/600/PS	$1999
Portable Stylewriter	$239*
StyleWriter 2200	$369
StyleWriter 1200	$175*
HP DeskWriter 550C	$259*
HP LaserJet 5MP	$999
HP LaserJet 4M Plus	$1849
STAR COLOR PRINTER FOR MAC	$129

MONITORS

APPLE

15" MultiScan	$359
17" MultiScan	$869
17" 1705	$699
17" 1710	$949
17" 1710AV	$999
20" MultiScan	$1799

SONY

1425 14"	$309
CPD 15SXI 15"	$429
CPD 15SFII 15"	$509
17SFII 17"	$859
GDM 17SEII	$1049
20SFII 20"	$1799

RADIUS

PrecColor 17/20	$699*/1399*
PressView 21	$1699*
Intellicolor 20I	$1199*
SuperMac 21TXL	$1599*
PrecisionView 21	$2099
MultiView 21	$1899

NEC

XP15	$599
XV17	$759
XP17	$1039
XP21	$2149

NOTE: SONY & NEC MONITORS REQUIRE MAC ADAPTERS, SOLD SEPERATELY

GE 4 YEAR ON SITE WARRANTY!

ASK YOUR SALES REP REGARDING GE EXTENDED ON SITE WARRANTY

$100 to $350	$351to $350	$701 to $1200	$1201 to $2000	$2001 to $3000	$4001 to $5000
$49.95	$79.95	$139.95	$169.95	$199.95	$259.95

FedEx NEXT DAY AND SAME DAY SHIPPING AVAILABLE, WE SHIP WORLDWIDE!

OPEN SATURDAY, VISIT OUR SHOWROOM!

12002 PICO BLVD. WEST LOS ANGELES, CA 90064

* Reflects Refurbished Units. Prices Subject To Change Without Notice.
CALL FOR LATEST PRICE. ALL PRICES REFLECT A 2% CASH DISCOUNT
Credit Cards Will Be Verified For Fraudulent Use.

WE WILL TRY TO BEAT ANY ADVERTISED PRICE!
SUBJECT TO AVAILABILITY & VERIFICATION OF ADVERTISEMENT

EXTENDED WARRANTIES AVAILABLE!

Premier

MACBASE™ U.S.A

1941 B Freeman Signal Hills, CA 90804

Since 1988

HOURS : M-F 8-6 PST SAT 10-2

(800)951-1230

International (310)498-1230 FAX (310)498-0032

GOVERNMENT, UNIVERSITIES, & POSITIVE 1000+ COMPANY P.Os ARE ACCEPTED

7200/75Mhz 8/500/CD

it offer enhanced expandability and performance that make them ideal for small and medium-size businesses•3 industry-standard PCI expansion slots•SCSI connector for hard disks, CD-ROM drives, and other SCSI devices•Internal expansion bay for additional storage device•Up to 256MB of RAM•Up to 4MB of VRAM•PowerPC 601 running at 75 Mhz

$1359

Mon. & Kb sold separately

Mac CPUs

6100/66 8/500/CD	$1299
6100/66 16/500/CD DOS	$1898
8100/110 Mhz 16/2GB/CD	$2999
7200/90 8/500/CD	$1498
7500/100 16/500/CD	$2499
8500/120 16/1GB/CD	$3659
9500/132Mhz 16/1GB/CD/VI	$3729
9500/132Mhz 16/2GB/CD	$3749

PERFORMA

Performa 640 12/500/CD DOS	$1459
Performa 6116 8/700/CD	$1548
Performa 5215 8/1GB/CD	$1858
Performa 6220 16/1GB/CD/TV	$1798
Performa 6205 8/1GB/CD	$1929
Performa 6300/100 MHZ	$2559

PowerBook

PB 5300ce 32/1.1GB	$5398
PB 5300c 8/500	$3189
PB 5300c 16/750	$3698
PB 5300cs 8/500	$2298
PB 5300cs 16/750	$2798

PB 5300 8/500	$1679
PB 190/66 8/500	$1598
PB 190cs/66 8/500	$1879

Custom Configuration Available

7200/75 24/1GB/CD	$2169
7200/90 32/1GB/CD	$2469
7500/100 40/1GB/CD	$3569
8100/100 24/1GB/CD	$2895
8100/110 80/4GB/CD	$5189
8500/120 128/4GB/CD	$7759
9500/132 64/2GB/CD	$5098

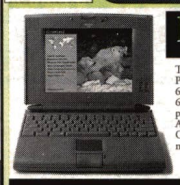
Workgroup Servers

Great Internet Server

6150 16/700/CD/A.S	$2695
6150/66 INTERNET	$2495
8150/110 16/1GB/CD/A.S	$4495
8150/110 INTERNET	$4095
9150/120 INTERNET	$7295

FedEx **WEEKLY SPECIALS**

PowerBook 540c



The PowerBook 540c is one of Apple's top of the line color PowerBook computer, combining the high performance Motorola 68LC040 processor with an active matrix color display • It has 68LC040 processor running at 66/33 Mhz. upgradable to PowerPC processor • Built in ethernet and video out port supporting most Apple monitor display. 4 Mb of RAM expandable to 36 MB • Optional 19.2bps Global Village fax modem• High capacity Type II nickel metal hydride • Weight : 7.3 lbs

*Apple Factory Refurbished

4MB/320HD	12/500/MOD
$2459*	$2998*

7100/80 8/700/CD	$1489
Mac LC 550 4/160HD/no kb	$639
PERFORMA 636 8/250/KB	$779
PERFORMA 630CD 8/250/CD/KB REF	$789
PERFORMA 6116CD 8/700/CD/14"	$1548
9500/132 16/2GB/CD	$3749
9500/120 16/1GB/CD	$3249
8100/110 16/2GB/CD	$2999
7200/75 8/500/CD	$1359
PB 5300CE/117 32/1.1GB	$5398
PB 5300C/100 8/500	$3189
PB 520 4/160 Ref	$1198
PB 520 4/240	$1399
LaserWriter 4/600 PS	$799
LaserWriter 320	$599
Color StyleWriter 2400	$319

Limited In Stock

MEMORY

MAC 72-PIN

4MB 60ns	$129
8MB 60ns	$249
16MB 60ns	$499
32MB 60ns	$849

MEMORY PRODUCTS ARE NEW W/ LIFETIME WARRANTY

Prices reflect cash discounts and subject to change without notice.

7200/7500/8500/9500

8MB DIMM	$259
16MB DIMM	$449
32MB DIMM	$879
64MB DIMM	$1889
1MB V-RAM	$79
256K L2 Cache	$259
512K L2 Cache	$379

PB5300 & 190 SERIES

4MB UPGRADE	$179
8MB UPGRADE	$299
16MB UPGRADE	$569
32MB UPGRADE	$1149

PB 500 SERIES

4MB UPGRADE	$169
8MB UPGRADE	$279
16MB UPGRADE	$559
32MB UPGRADE	$1139

In Stock

Power Systems and Supplies.

POWER MACS

Power Mac 9500[132] 16/2GB/CD	3,649
Power Mac 9500[120] 16/1GB/CD	3,999
Power Mac 8500[120] 16/1GB/CD	3,699
Power Mac 7500[100] 16/1GB/CD	2,689
Power Mac 7200[90] 8/500/CD	1,599
Power Mac 7200[75] 8/500/CD	1,399
Power Mac 7100[80] 8/700/CD	1,699
Power Mac 7100[80] AV 8/700/CD	1,999
Power Mac 8100[100] 8/700/CD	2,499
Power Mac 8100[100] AV 8/700/CD	2,699

NEW POWER BOOKS

Power Book 5300[100] 8/500	1,925
Power Book 5300[100] CS 8/500	2,449
Power Book 5300[100] C 16/750	3,999

PERFORMAS

Performa 5215[75] 8/1GB/CD/FAX	1,749
Performa 6200[75] 8/1GB/CD/FAX*	1,349

PERIPHERALS

Laserwriter Color	5,399
Stylewriter 2200 Color	369
Laserwriter 4/600	799
CD ROM 600 External	299
Apple Monitor 14"- NEW	319
Apple Monitor 15"	429
Apple Monitor 17"- NEW	699
Apple Monitor 20"	1,849

SCANNERS

Microtek	CALL
Umax	CALL
Nikon	CALL

SyQuest ext.

CARTRIDGE	DRIVE
88MB 45	199
200MB 65	369
270MB 57	369
EZ 135MB 19	199

MACNET **1-800-404-9976**

All products are fully warranted. Dealers inquires welcome.

Prices, availability and specifications are subject to change without notice. Prices reflect a cash discount. *CPU Only

MICRO PRODUCT DISTRIBUTORS

PowerMacs

7200/75 8/500 CD	1,455.
7200/90 8/500 CD	1,596.
7200/90 16/500 CD	1,795.
7500/100 16/500 CD	2,535.
7500/100 16/1000 CD	2,817.
8500/120 16/1000 CD	3,757.
8500/120 16/2000 CD	4,227.
9500/132 16/1000 CD w/Video	4,000.
9500/132 16/2000 CD	4,088.
6100/66 8/500	1,196.
6100/66 8/500 CD	1,339.
7100/80 8/700 CD	1,434.
7100/80AV 16/700 CD	2,104.
8100/100 8/700	2,009.
8100/100 16/1000 CD	2,679.
8100/100AV 16/1000 CD	2,870.
8100/110 16/2000 CD	3,157.

PowerBooks

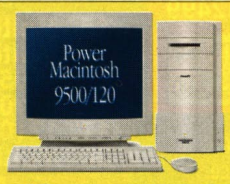
5300/100 8/500	1,687.
5300cs/100 8/500	2,308.
5300cs/100 16/750	2,769.
5300c/100 8/500	3,139.
5300c/100 16/750	3,693.
5300ce/117 32/1.1GB	5,539.
Duo 2300c/100	Call
190/66 8/500	1,596.
190cs/66 8/500	1,878.

Printers

StyleWriter 1200	233.
Color StyleWriter 2400	365.
Personal LaserWriter 320	760.
LaserWriter Select 360	1,164.
LaserWriter Pro 16/600	1,999.
LaserWriter 4/600ps	806.
Color LaserWriter 12/600	6,107.

Performas

631CD 8/500	1,330.
640CD 12/500	1,878.
5215CD 8/1GB	1,836.
6116CD 8/700	1,578.
6200CD 8/1GB	1,857.
6205CD 8/1GB	1,949.
6220CD/TV 16/1GB	1,857.
6300CD 16/1.2GB	2,600.



PowerMac 9500/120 16/1000 CD

$3,740.

Displays

14" Multiple Scan	332.
15" Multiple Scan	395.
17" Multiple Scan	935.
1705 Multiple Scan	716.
Apple Vision 1710AV	1,009.
20" Multiple Scan	1,878.

Storage Devices

Quantum 730MB HD Ext	210.
Quantum 1GB HD Ext	290.
Quantum 2GB HD Ext	710.
SyQuest 135MB EZ Drive	229.
SyQuest 88MB Ext	339.
SyQuest 200MB Ext	479.
SyQuest 270MB Ext	458.

FREE **w/your Apple CD 600e for $298.**

While supplies last

Free FedEx 2nd Day on CPU's

Memory

4MB, 72-pin	99.
8MB, 72-pin	201.
16MB, 72-pin	405.
32MB, 72-pin	819.
4MB Dimm	125.
8MB Dimm	211.
16MB Dimm	427.
32MB Dimm	860.
64MB Dimm	1,730.

Please call for PowerBook Memory.

Your PowerMac Number One Source

30-Day Money Back Guarantee(*)

Please call for Custom Configurations. Prices reflect 3% discount for CASH ONLY!. Prices subject to change without notice. Please call for latest prices. (*) Certain conditions apply. All Major Credit Cards accepted. International orders Welcome. Call (305) 477-4441 or Fax Us at (305) 477-4602.

- 48 Hours Turn-Around on Warranty Repairs.
- School & Government PO's Welcome.
- Leasing Terms Available, Call for Details

1-800-993-5673

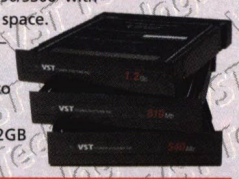
PowerBook 190/5300 Solutions from VST

Essential products for people who are going places!

Expansion Bay Hard Drives

Expand your PowerBook 190/5300 with up to 1.2GB of extra storage space.

- Bootable from the box — just Plug-N-Play!
- Hot swappable – no need to restart, sleep, or shutdown
- 540MB, 810MB, and 1.2GB sizes available

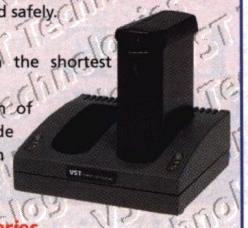


Auto Adapter 5000

- Powers the PowerBook from any cigarette lighter socket
- Charges the internal battery while the PowerBook is in use

Charger 5000 & Internal Batteries

Finally, you can stock up on spare PowerBook 190/5300 batteries, and charge them quickly and safely.



Charger 5000

- Charge two batteries in the shortest possible time
- Charges any combination of Nickel Metal Hydride (NiMH) and Lithium-Ion (Li-Ion) batteries

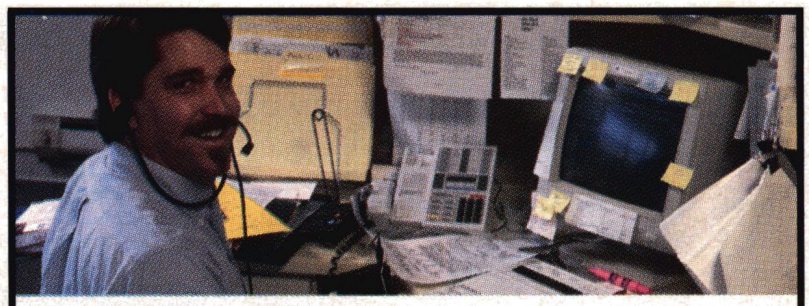
Nickel Metal Hydride Internal 190/5300 Batteries

- Batteries meet or exceed ALL of Apple's specifications
- Average runtimes between 2.5 and 4 hours
- Specially priced Charger 5000 / Battery bundle available

30 DAY moneyback guarantee

VST TECHNOLOGIES

VST Technologies • 1620 Sudbury Road • Suite 3 • Concord, Massachusetts 01742 • (508) 287-4600 • Fax (508) 287-4068 • vstinc@aol.com



"Boxlight means great prices, superb products, and experts to help you choose exactly the right system."

PANELS FROM $1999
PROJECTORS FROM $3999
GOODBYE SLIDES!

Project your full-color monitor image onto a screen or wall

ProColor™ 3080

- Brightest – use even in lit rooms
- Mac or PC, Video plus Audio
- Only 16 lbs. travel weight
- Clarity sharp as 35 mm slides.

1-800-762-5757

BOXLIGHT™ DIRECT

Government: (800) 497-4009
Resellers: (800) 736-6956
International: (360) 779-7901

The Inc. 500 logo is a registered trademark of Goldhirsh Group, Inc.

LET SOMEONE ELSE DO IT!

Need a data management problem solved but don't have the time, or staff, or expertise to get it done? Turn the job over to a registered 4th Dimension developer, experts at using 4th Dimension® and the suite of 4D products for database application development. Whether your problem can be solved by an off-the-shelf solution or needs a custom personalized solution, there is a 4D Developer who can get the job done for you.

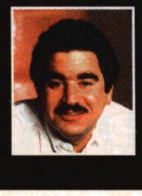
SOME 4D DEVELOPERS WHO COULD HAVE SOLUTIONS FOR YOU

Footprints, Inc.	Custom Developers, Mac/Windows	800-635-5280
James Integrated Technology	Sales & Operations Software	800-735-0635
Natural Intelligence	Custom Development	800-999-4649
Pacific Data Management, Inc.	Custom Development Experts	800-220-6430
Softek Design, Inc.	Accounting SW Solutions	970-728-5252

For more information on 4D registered developers, call ACI at (408) 252-4444
ACI US, Inc. 20883 Stevens Creek Blvd., Cupertino, CA 95014

VOLUME

"We're definitely reaching volume buyers in MacWEEK Marketplace. They're calling in droves and they're buying."



—Jay Goldstein, President, 800-WE-FIX-MACS

PUT YOUR AD HERE AND WRITE YOUR OWN MacWEEK SUCCESS STORY. START ADVERTISING NOW!
CALL 800-825-4237 TODAY!

GROWTH

"The volume, referrals and repeat business are tremendous from MacWEEK Marketplace customers. We never miss an issue of MacWEEK. It generates a tremendous amount of revenue for us and has fueled our growth."

—Kelley Leopard, Principal, Total Recall, Inc.

PUT YOUR AD HERE AND WRITE YOUR OWN MacWEEK SUCCESS STORY.
START ADVERTISING NOW! CALL 800-825-4237 TODAY!

LATEST Mac S·A·L·E INTERNATIONAL SPECIALS

* HUGE SAVINGS ON NEW *

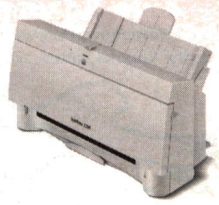
PowerMac 7200
(CPU only)

75MHz 8/500/CD- $1,399.00
90MHz 16/500/CD- $1,799.00
Save $50 with Monitor & Keyboard Purchase

• Personal LaserWriter NTR •
Logic Board UPGRADE
With Trade-in - ONLY $99.00

New MS Word/Excel Bundle - $79.00
ONLY $49.00 With Any CPU

New MicroSoft Works V2.00 - $15.00
ONLY $10.00 With Any CPU Purchase



StyleWriter 1200
with Ink Cartridge & Cable
► $199.00 ◄

* NEW *

PwrMac 9500/120 16/1GB/CD	$3475.00	Apple 15" Multiple Scan Display	$395.00	MacAlly Ext. Kybd.	$55.00
PwrMac 8100/80 8/500	$1595.00	Apple 12" MonoMonitor	$129.00	External Hard Drive Enclosure	$69.00
Performa 5215 8/1GB/CD	$1799.00	Laser IIg Logic Bd (Upgrade)	$450.00	Apple PowerBook Int. Data/Fax Modem	$25.00
Apple StyleWriter 2200	$350.00	Apple Portrait Display	$375.00	Apple Toner for Select 300,310,360	$69.00

* USED/*REFURBISHED *

(Other Configurations Available)

Desktop CPU's

Mac Plus	No Kbd or Mouse	$99.00
Mac SE (800K)	1/0	$199.00
Mac SE (FDHD)	1/0	$299.00
•Mac II	4/0	$225.00
•Mac II	4/40	$250.00
•Mac IICX	4/80	$325.00
•Mac IIFX	4/80	$525.00
•Add 8 Bit Video Card		$50.00
Mac LC	2/40	$299.00
Mac LC II	4/80	$375.00
Mac LC III	4/80	$449.00
Mac IISI	5/80	$395.00
Mac IISI	5/160	$429.00
Mac IICI	4/80	$395.00
Mac IIVX	4/80	$549.00
Mac Portable	2/40	$350.00
Pwr Mac 7100/80	8/500	$1179.00
Centris 610	4/230	$575.00
Centris 650	4/230	$699.00
Centris 660AV	8/230/CD	$999.00
Quadra 700	4/80	$799.00
Quadra 800	8/500	$1195.00
Quadra 950	16/500	$1499.00
Performa 200	4/80	$399.00
Performa 400	4/80	$375.00
Performa 410	4/80	$375.00
Performa 600	5/80/CD	$699.00

(Performa's Are CPU Only)

PowerBooks

PB 100	4/40	$499.00
PB 145	4/80	$799.00
PB 145B	4/80	$799.00
PB 160	4/80	$949.00
PB 165	4/160	$1099.00
PB 165C	4/80	$1299.00
PB 180	4/120	$1450.00
Duo 210	4/80	$699.00
Duo 230	4/80	$899.00
Duo Dock		$349.00
Duo Floppy Adapter		$59.00
Duo Battery Recharger		$45.00
PB Battery Recharger		$35.00
PB Int. Fax/Data Mdm		$25.00
PB 14.4 Express Mdm		$79.00
PB AC Adapters		$39.00
Apple HDI-30 System Cable or SCSI Disk Adapter		$25.00

Video

Apple 8 Bit Video Cards	$85.00
Apple 13" RGB Display	$250.00
Apple 14" Color Plus Display	$250.00
Apple 14" Color Display	$350.00
★Apple 15" MultiScan	$339.00
Apple 16" RGB Display	$649.00
Apple 20" MultiScan Display	$1299.00
Apple Portrait Display	$199.00
Performa Display	$179.00

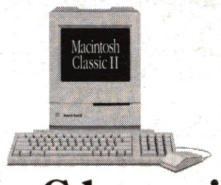
Printers/Peripherals

**Personal Laser LS	$279.00
LaserSelect 300	$299.00
Stylewriter	$129.00
Stylewriter II	$159.00
Portable Stylewriter	$199.00
ImageWriter II	$199.00
I/W LocalTalk Card	$59.00
Apple Color Printer	$299.00
Apple OneScanner	$249.00
Apple Color OneScanner- ($50 OFF w/CPU Purchase)	$399.00
Apple Ext. SuperDrive (1.44MB)	$149.00
Apple CD 300 Ext. Drive	$199.00
Apple HDI-20 Ext. Floppy Drive	$129.00
Apple 5.25" Drive (LC/IIe)	$79.00
Apple Design Kbd	$69.00
Apple Ext. II Kbd	$95.00
Din 8 Cable (CPU to ImageWriter II)	$5.00
Geoport Telecom Adapter	$79.00
PowerBook Cordura Carrying Case	$15.00
Apple PowerBook 4MB Ram (For PowerBook 140-180c)	$85.00
1MB/80ns Simm (30 Pin)	$15.00
Apple EtherNet & Network Cards - Call!!	

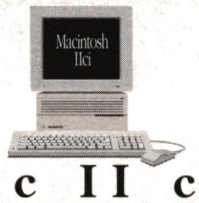
★ Denotes Factory Refurbished

* USED SYSTEM SPECIALS *

Mac LC II
4/80 W/Kbd & New Apple 12" Mono. Monitor
► $479.00 ◄
*For Color System: Add $150



Mac Classic II
4/80, 68030 16MHz W/Kbd. & Mouse
► $399.00 ◄



Mac II ci
4/80 W/Kbd & New Apple 12" Mono. Monitor
► $499.00 ◄
*For Color System: Add $150

APPLE POWER CD
3-in-1 Portable CD-ROM Drive w/Remote Control
for: Mac CD-ROM, Photo CD & Audio Compact Discs
► $149.00 ◄

We Now Offer A Huge Inventory Of Parts For All Apple Products & Also Offer Extended Warranties
Visit Our Web Site At: www.getnet.com/macsale Or E-Mail Us At: macsale@getnet.com

Limited Quantities/Prices Subject To Change
Prices represent a Cash Discount - off Full Price.
Returns at discretion of Mgmt./15% Restocking fee.

1-800-729-7031

1150 W. Alameda Drive, Suite . #1 & 2
Tempe, AZ 85282
(602) 858-0900 / (602) 858-9537 (Parts)

WE WANT TO BUY YOUR NEW/USED MAC EQUIPMENT

Diamond Computer Resources, Inc.

Standard & New 72 Pin SIMM's
PowerBook Memory
Quadra & Centris VRAM
We Buy New & Used SIMM's

16MB 72 PIN.... CALL
4X8 30 PIN.....$119

LifetimeWarranty MC/Visa No Surcharge
Corp.,Gov.&Univ.PO's Accepted
Fax 512-219-1132

800-541-7126

13377 Pond Springs R., Ste 105
Austin, TX 78729 • 512-219-1222

Best Quality Lowest Price Memory

MAC MEMORY

LIFETIME GUARANTEE

DMS
Data Memory Systems Inc.
24 Keewaydin Drive unit 5
Salem, NH 03079
Tel. 603-898-7750
Fax 603 898 6585

30 PIN SIMMs 1MB/2MB/4MB/8MB/16MB	**VIDEO RAM** 256K/512K
72 PIN SIMMs 4MB/8MB/16MB/32MB	**POWER MAC CACHE** 256K/512K/1024K
168 PIN DIMMs 4MB/8MB/16MB/32MB/64MB	**DIMM CACHE** 256K/512K/1024K
ALL POWER BOOK's 2MB-36MB	**MEMORY FOR ALL PRINTERS**
1MB DIMM VIDEO RAM 9500/8500/7500 Series	**FPU & PROCESSOR's** 68040 Processor w/FPU 25MHz
2MB VIDEO UPGRADE 9500/8500/7500 Series	68040 Processor w/FPU 33MHz 68882 FPU 25MHz /33MHz

University, Government and Corporate P.O.'s with Approved Credit

1-800-662-7466

Memory Upgrade Specialists Since 1987

CENTRIC

COMPUTING

MEMORY

WHOLESALERS

SIMMS		DIMMS	
4MB72/70	$109	4MB144/70	$129
8MB72/70	$219	8MB144/70	$239
16MB72/70	$439	16MB144/70	$439
32MB72/70	$849	32MB144/70	$869
PB RAM	$CALL	64MB144/70	$1749

1MBVRAM DIMM 72/75/85/95xx $69
256K/512K CACHE72/75/85/95xx $179/279

LIFETIME WARRANTY

(800) 900-4599

Voice 305/725-9777 • Fax 305/725-9977
email source@netrunner.net

NO CREDIT CARD SURCHARGES

VISA MasterCard FedEx Federal Express American Express Cards DISCOVER NOVUS

WANTED:

Used Memory

TOP $$$ PAID

Guaranteed!
We'll honestly try to beat ANY price!
256K-64Mb ■ Any Quantity
Trade-Ins Welcome
We Buy Macs
New & Used SIMMS Available
DIMMS Here Now!

(800)80-WE-BUY

MAC Solutions (310)394-0001

1416 Wilshire Blvd. Santa Monica, CA 90403
FAX: (310) 394-7744

Memory Wanted

WE BUY NEW OR USED

SIMMS

256K, 512K,
1MB, 2MB, 4MB,
8MB, 16MB, 32MB.

30 Pin, 64 Pin
or 72 Pin.

POWERBOOK
2MB - 28MB

We Buy In Quantity. Call Us or Send Fax.
INNOVATIVE MICRO PRODUCTS, INC.
7631 Leesburg Pike, Suite A
Falls Church, Virginia 22043
Tel.: 703-848-0711 Fax: 703-848-0712

MEMORY

Guaranteed Lowest Prices
Life Time Warranty

- 30 Pin SIMMS
- 1MB—16MB
- 72 Pin SIMMS
- 1MB—64MB
- 72 Pin EDO
- 4MB—64MB
- All Note Books
- All Printers
- VRAM, DIMM, CACHE

WE BUY MEMORY

We accept P.O.'s from government, schools & qualified firms.

Eritech International
1-800-808-6242
818-244-6242 818-502-5059

ULTRA-HIGH PERFORMANCE UPGRADES FOR POWERMAC

Premium Products for those who demand the best

Top rated products by Mac Home Journal & MacSense

Warp Factor 135

6100.....up to 94MHz
7100.....up to 94MHz
8100/80....up to 94MHz
8100/100..up to 128MHz
8100/110..up to 135MHz
& FREE Speed Doubler

XLR8 INCORPORATED

New **HYPERSPEED $179**
HyperLogic Accelerator for
7200 & 7500 PPC
• Patent-Pending Technology • 120MHz and Beyond
• User Installable • 30 Day MBG • Life-Time Warranty

New **ARCTIC** Active Cooling System **$79**
• Extend the life of your processor • Achieve higher CPU speeds
• Decrease processor temperature up to 70 degrees F.
• User installable • A must for all accelerated 601 PPC!

New **Acceleration Certified Level 2 Cache**
6100, 7100 & 8100..... 256K / 512K / 1MB.....$99 / 259 / 599
7200, 7500 & 8500..... 256K / 512K.....$299 / 399

Warp Factor 175
Fastest Available!
9500 & 8500
Up to 175 MHz speed !
No tools installation
16 speed dial control

CALL (800) 206-7926

TEL: 512-346-2119
FAX:512-346-2800

DIMMS (168 pin)
4 MEG
8 MEG
16 MEG
32 MEG
64 MEG
100 MEG

upgrade and go INC.

800•816•7185

SIMMS (72 pin)
1x32 (4MB)
2x32 (8MB)
4x32 (16MB)
8x32 (32MB)

SIMMS (30 pin)
1x8
4x8
8x8
16x8

POWER BOOK MODULES

PCMCIA CARDS & FLASH CARDS

International 303•443•6336
Fax 303•443•0865

2019 19th Street
Boulder, Colorado 80302

"LIFETIME WARRANTEE"
AND FREE UPS GROUND SHIPPING W/ORDERS OVER $500

Lifetime Warrantee
Absolutely Lowest Prices
Corporate/Educational PO

"Your Upgrade only Store™"

Upgrade and Go, Inc. only carries "Jedec" Standard Memory Modules
Fully approved by Your Computer Manufacturer—100% Satisfaction Guarantee

---

TECHMATIX 800-777-4932

8309 LINDEN OAKS COURT.....LORTON.....VA.....22079 FAX 703-912-6649.....MONDAY - FRIDAY.....9 a.m. - 6 p.m.

POWERMAC

7200, 75MHZ/8/500/CD	$1465
7200, 90MHZ/8/500/CD	$1599
7500, 16/500/CD	$2539
7500, 16/1GB/CD	$2819
8500, 16/1GB/CD	$3759
8500, 16/2GB/CD	$4229
9500/132MHZ/16/1GB/CD	$4329
9500/132MHZ/16/2GB/CD	$4419
9500/132MHZ/32/2GB/CD	$5759
ACCESSORIES	$CALL

PERFORMA'S

5215CD	$1859
6200CD	$1859
6220CD/TV	$1859
6300CD	$2609

POWERBOOK

DUO 2300c, 8/750	$CALL
DUO 2300c, 20/1.1GB	$CALL
DUO 280c, 12/320/modem	$3289
PB 190, 8/500	$1739
PB 190cs, 8/500	$2065
5300cs, 8/500, DSTN	$2495
5300cs, 16/750, DSTN	$3139
5300c, 8/500, TFT	$3325
5300c, 16/750, TFT	$4065
5300ce, 32/1GB, TFT	$5899
ACCESSORIES	$CALL

WE CARRY MANY ITEMS NOT LISTED HERE.
PLEASE CALL FOR ALL YOUR MAC/IBM NEEDS
All products factory new except where stated. Pricing subject to change without notice. Please call for most current princing. No returns will be accepted without an RMA number. All RMA's subject to a restocking fee.

PRINTERS

APPLE LASERWRITER 4/600PS	$845
APPLE LASERWRITER SELECT 360	$1139
APPLE LASERWRITER 16/600PS	$2125
APPLE COLOR LASERWRITER 12/600PS	$6115
HP DESKJET 1600C/M	$1865
HP LASERJET 5MP	$985
HP LASERJET 4M+	$1879
HP LASERJET 4MV, 11X17	$2685
HP LASERJET 5SIMX	$3699
LEXMARK OPTRA R, 1200dpi, 12ppm	$1199
LEXMARK OPTRA R+, 1200dpi, 16ppm	$1389
LEXMARK OPTRA C COLOR LASER	$5889
LEXMARK LOCALTALK Card	$259

EPSON

STYLUS PRO XL Color Inkjet 720dpi, 13"X19", 2-Year Warranty	$1759

VISA, MASTERCARD & DISCOVER ACCEPTED. All prices reflect a 3% Cash Discount and are subject to change without notice.

Apple AST COMPAQ HEWLETT PACKARD LEXMARK Advancing The Art Of Printing radius

---

SONY MONITORS
17" SONY (R) AMEX $549
20" SONY (R) PO'S $785

INTERNAL DRIVES
IBM 540MB 2.5" PRBK $179
CONNOR 1 GIG 8.2 MS $225

PCI POWER MACS
6100, 7100 & 8100 CALL
7200/75 8/500/CD $1299
7200/90 16/500/CD $1699
7500/100 16/1G/CD $2656
8500/120 16/1G/CD $3490
9500/120 16/1G/CD $3350

POWERBOOKS
PBOOK 190CS 4/500 $1828
PBOOK 5300CS 8/500 $2380
PBOOK 540C 4/320(R) $2949

Computer Guys
603-659-2912 FAX 659-5722
PRICES REFLECT CASH DISCOUNT & MAY CHANGE W/O NOTICE

MACMAIL

WITH THE LOWEST PRICE EVER

POWERMAC 7200/75•8/500/CD	$1324
POWERMAC 7200/90•8/500/CD	$1540
POWERMAC 7200/90•16/500/CD	$1734
POWERMAC 7500/100•16/1G/CD	$2746
POWERMAC 8500/120 16/1G/CD	$3759
PERFORMA 6200 CD•8/1G	$1814**
PERFORMA 6300 CD•16/1.2G	$2598**
**Prices include Monitor, Keyb., Modem &Soft.	
PRINTER APPLE COLOR SW 2400	$323
PRINTER APPLELW 4/600 PS W/TNR	$702
PRINTER APPLE LW PRO 16/600 W/TNR	$1985
PRINTER APPLE COLOR LW 12/600 W/KIT	$6016
MONITOR APPLE 15" MULTISCAN	$383
MONITOR APPLE 17" MULTISCAN	$715
POWERBOOK 5300 CS/100 8/500	$2436
POWERBOOK 5300 CS/100 16/750	$3959
POWERBOOK 190	CALL...

•SE HABLA ESPANOL •Int'l Orders Welcome
•Leasing Plans •FEDEX•UPS•Etc.•Prices may change
•Prices represent cash discounts

MACMAIL VISA COD
Miami, Florida 1-800-622-6844
International call (305) 639-9646
800-MAC-6844

Classified

DATA
MICRO COMPUTER INC.

800•345•1234
TEL (310) 398•3300
FAX (310) 391•2488

DEALERS & INTERNATIONAL SALES WELCOME!

• Govt, Univers.'s & Corp. P.O.'s welcome •

AGFA

Arcus $1995	

Apple

Sele.300/495	
S/360 $1045.	
12/600/5895.	
16/600/1695.	
Per/320/599.	
Per/300/399.	

RADIUS

15" Gray Scale	395.
15" Pivot/Gray Scale	474.
15" Pivot Color	595.
20" TPD/20GS	675.
21" TPD/21GS	777.
Precision Color/17	795.
Intellicolor Disp./ 20E	1869.
Pressview 21T	2626.
SuperMatch 17XL	695.
SuperMatch 20 Plus	1395.
SuperMatch 21 Color	1595.
SuperMatch 21TXL	1945.
Video vision Studio	2995.

POWERMAC

6100/66 8/500/CD	1345.
7100/80 8/700/CD	1450.
7200/75 8/500/CD	1395.
7200/90 16/500/CD	1752.
7500/100 16/500/CD	2526.
7500/100 16/1Gig/CD	2695.
8100/80 8/700	2179.
8100/100 16/700/CD	2685.
8100/110 16/2Gig/CD	2995.
8500/120 16/1Gig/CD	3695.
8500/120 32/4Gig/CD	4789.
9500/120 16/1Gig/CD	3795.
9500/120 32/4Gig/CD	5295.
9500/132 16/2Gig/CD	4550.
9500/132 32/4Gig/CD	5655.

POWERBOOKS

5300CE 32/1Gig	5998.
5300C 16/750	4195.
5300C 8/500	3355.
5300CS 16/750	3245.
5300CS 8/500	2595.
5300 Mono 8/500	2064.
190CS 8/500	2065.
190 8/500	1795.
540C 4/320	2995.
520C 4/160	1595.
520C 4/240	1695.
520 4/240	1195.
150 4/120	1085.
Mini Dock	95.
Full Dock	395.

PERFORMAS

475 4/160	544.
476 4/320	595.
550 5/160CD	844.
575 5/250CD	995.
578 8/320CD	1175.
5215 16/1Gig CD	1795.
630 4/250	655.
635 4/250CD	775.
637 8/350CD/15"	1297.
638 TV/8/350CD15"	1352.
640Dos 12/500CD	1595.
6200 16/1Gig/CD	1826.
6220TV 16/1GigCD	2199.
Centris 650 8/500	995.

NEW
PCI PowerMACs

7500/100	16M/500M/CD	2,549
7500/100	16M/1G/CD	2,820
8500/120	16M/1G/CD	3,729
8500/120	16M/2G/CD	4,189

PowerBooks

190/66	8M/500M	1,745
190/cs/66	8M/500M	2,075
5300cs/100	8M/500M	2,499
5300cs/100	16M/750M	3,149
5300c/100	8M/500M	3,339
5300c/100	16M/750M	4,079

PERFORMA
Full Line Now Available.

Credit Card or Lease Accepted.

800•999•4568

AIS

California Telephone: 510.770.5196

Prices may change w/o notice. Prices reflect cash discount.

Make us an offer!
We will do our best to beat a price quote or lease payment

Mac Storm has all models of PowerMacs, Performas and the Powerbooks.

Corporate Leasing Available, ask about our lease specials!

Printers: H.P., Apple,Epson, Texas Instruments and other models!

Monitors: Apple, Sony, NEC, Radius and other models!

Scanners: Agfa, Apple, Epson,H.P., Nikon, UMAX and other models!

Apple Mail-order Reseller

LEASE SPECIALS

7200/90 16/500/CD $66/month

7500/100 16/1GB/CD $100/month

8500/120 16/1GB/CD $131/month

Lease Payments are for 36 month FMV!

All major credit cards accepted. We carry over 800 vendors.

CPU SPECIALS

7200/90 16/500/CD $1769

7500/100 16/1GB/CD $2699

8500/120 16/1GB/CD $3699

5300/CE 32/1.1GB $5799

Prices reflect a 3% Cash Discount Prices subject to change w/o notice

Mac Storm
In California Since 1988

Order (800) 594-4007
Inquiry (310) 829-9780
24 Hour Fax Line (310) 315-1009

International & Dealer sales Welcome.
FedEx and UPS Ground Shipping available.
All equipment brand new, no refurbs!

NO CREDIT CARD SURCHARGES!

Cards MasterCard VISA

MAC SPOT
1800 680-1112
FAX 305-591-4391

FREE DELIVERY

POWER MACS	PRICE	LEASE
Power Mac 9500/120 16/1GB/CD	4,199	111
Power Mac 8500/120 16/1GB/CD	3,799	95
Power Mac 7500/100 16/1GB/CD	2,799	71
Power Mac 7200/90 8/500/CD	1,699	44
Power Mac 7200/75 8/500/CD	1,499	41
Power Mac 7100/80 AV 8/700/CD	1,999	53
Power Mac 8100/110 16/2GB/CD	3,190	77
Power Mac 8100/110 8/500/CD	2,099	61
Performa 5200/75 8/1GB/CD/FAX	1,899	51
Performa 6200/75 8/1GB/CD*	1,399	38
Performa 630 8/500/CD*	999	27

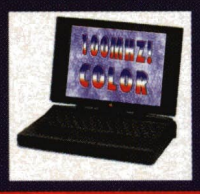
PRINTERS & ACCES.	PRICE	LEASE
Laserwriter Color	5,700	143
Apple 20" Monitor	1,960	49
Apple 15" Monitor	470	12
Stylewriter 2400B	399	10
Laserwriter 4/600	849	22
NEW POWER BOOKS	**PRICE**	**LEASE**
Power Book 5300/100 8/500	1,999	53
Power Book 5300/100 CS 8/500	2,499	65
Power Book 5300/100C 16/750	4,199	105

Memories,Hard Drives and Syquest also available.

TOTALLY FREE DELIVERY BY FedEx *FREE 2nd DAY DELIVERY - ALL RETURN SHIPMENT EXCLUDED.

Lease quotes are based on a 60 months lease program, 10% buyout option at the end of the term. Other programs available. *CPU Only

5300c 100MHZ! 16/750 $3999
5300cs 100MHZ! 16/750 $3049
5300cs 100MHZ! 8/500 $2399
5300 100MHZ! 8/500 $1899



- 100MHz 603e CPU
- 2 PCMCIA BUS
- NEW DESIGN
- Ion Lithium Battery
- 5 Hour Battery Life
- 16bit Stereo Sound

NEW! EMAIL US AT CompuAmer@aol.com

We are OPEN Saturday!

COMPU AMERICA
"The Computer Specialist"

Come see our huge showroom!

1-800-533-9005

Sales (310) 446-1771 FAX (310) 475-7744

10435 Santa Monica Blvd., LA CA 90025

9500 132MHZ! 16/2GIG/4XCD $4599
9500 120MHZ! 16/1GIG/4XCD $3995

- 132MHz CPU
- 604 RISC
- PCI BUS
- Tower Case
- Built in EtherNet
- 6 PCI Slots
- 4X CD-ROM
- Upgradeable CPU!

8500/120MHZ

- 120MHz PowerPC CPU
- Audio/Visual Capable
- Built in Video Capture
- Supports 24bit Color
- 3 PCI Slots

16/1GIG/4XCD $3899
16/2GIG/4XCD $4299

7500/100MHZ

- 100MHz PowerPC 601
- Upgradeable CPU
- Video In
- 3 PCI Slots
- Desktop Case

16/500/4XCD $2549
16/1GIG/4XCD $2699

7200/90MHZ

- 90MHz PowerPC 601
- Up to 136MB RAM
- Built in EtherNet
- 3 PCI Slots
- Desktop Case

8/500/4XCD $1599
16/500/4XCD $1799

7200/75MHZ

- 75MHz PowerPC 601
- Up to 136MB RAM
- Built in EtherNet
- 3 PCI Slots
- Desktop Case

8/500/4XCD $1449
8/1GIG/4XCD $1749

8100/110

- 110MHz PowerPC CPU
- Fastest Nubus Ever
- Built in Video
- Tower Case
- 3 Nubus Slots

16RAM/2GIG HD/ CD
$2999

8100/100 AV

- 100MHz PowerPC CPU
- Audio/Visual Capable
- Built in Video Capture
- Supports 24bit Color
- 3 Nubus Slots

16RAM/1GIG HD/ CD
$2899

7100/80MHZ

- 80MHz PowerPC CPU
- Up to 136MB RAM
- Built in EtherNet
- 3 Nubus Slots
- Affordable Price

8RAM/700HD/CD
$1499

6100/66MHZ!

- 66MHz PowerPC CPU
- Up to 72MB RAM
- Built in EtherNet
- Optional DOS card
- One PDS Slot

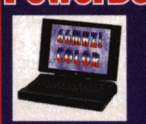
8/500/CD $1349
16/500/CD $1649

QUADRA 950

- 68040 CPU
- Up to 256MB RAM
- Built in EtherNet
- 5 NUBUS SLOTS
- Tower Case

8MB RAM/ 230MB HD!
$1799

PowerBook 190CS



- 66/33MHz 68LC040
- Up to 36MB RAM
- 10.4" Color, 9.5" BW
- Built in TrackPad Mouse
- 2 PCMCIA Slots

Mono 4/500 $1629
Color 8/500 $2049

DUOS & Docks

2300c 8/750 $3499
280 4/240 $1899
280 12/240/FAX $2299
280C 4/320 $2599
280C 12/320/FAX $3199
DUO DOCK $399*
DUO DOCK II $599*

PowerBooks

520 4/240 $1499/1299*
520C 4/160 & 240 1599*/1699*
520C 12/500/FAX 2399*
520C 4/160 & 240 1699/1749
520C 12/500/FAX $2599
540C 4/320 2799*
540C 12/500/FAX 3599*

Performa

6300 16/1GIG/CD	$2449
6230 16/1GIG/CD	$2399
6220 16/1GIG/CD	$1899
6205 16/1GIG/CD/28.8	$1995
6200CD 8/1GIG	$1729
6116CD 8/700/CD	$1449
5215CD 8/1GIG/CD	$1899
640CD 12/500/DOS/CD	$1799
631CD 8/500	$1349

Performa

638CDV 8/350/CD	$1199*
637CD 8/350/CD	$1149*
635CD 5/250/CD	$1049*
578CD 8/320/CD	$1149
575CD 5/250/CD	$999
575CD 5/250/CD	$899*
550CD 5/160/CD	$799*

Monitors

Sony 15SF / 17SF	479/859
Sony 17SE1 / 20SE1	1099/1899
NEC 15XV/17XV	499/779
Apple MultiScan 14"	369
Apple 15" / 17"	449/929
Apple 1705 17"	749
Apple 17" 1710AV w/spkr.	1029
Apple 20"	1899

Apple Printers

StyleWriter II	$199
StyleWriter 2200	$399
StyleWriter 2400c	$399
LW 4/600/PS	$849
LW Select 320	$599
LW Select 360	$1099
LW 16/600PS	$1995
LW 12/600/PS Clr	$5995

WorkGroup Server
8150/110
16/1GIG/CD/DAT
$4299

Accessories!

GV Teleport Platinum 28.8 $199
GV Teleport Gold II 14.4 $129
Apple 6100 DOS Card $499
Apple Color One Scanner $699
ATI Graphis Ultra w/4MB $499

All prices are cash discounted. Prices subject to change without notice. Not responsible for typos. Government, Universities, and Fortune 1000 company P.O.'s are welcome.

Parts Trades Upgrades

*Call 318-424-9791

Mac II to IIfx **$449**

Mac IIx to IIfx **$399**

Mac II to IIfx with SuperDrive **$599**

PowerMac 7100/80 8/500/CD **$1399** NEW
monitor & keyboard not included

MACINTOSH SYSTEM 7.5 .....25/35.
New Duo Type 1 Batteries.....15.
IIvx Logic Board.....249.
Newton Fax/Modem 2400.....49.
PowerBook 140-180c keyboard.....49.
PowerBook 140-180 A/C adapter .....49.
Curtis Trackball Mouse new .....39.
StyleWriter ink cartridges: 3 for 29
ImageWriter LQ ribbon.....6.
IIsi Power Supply.....CALL.
PowerBook Canvas Tote Case.....19.
Quadra 660AV NuBus Adapter .....49.
Personal NT Logic Bd. ..... 49.
1.44 internal floppy drive NEW .....129.
Mac Plus Keyboard ..... 29.

BARGAIN BASEMENT

Macintosh Logic Board Upgrades

Personal NT to NTR printer ugprade	exchange $199
LaserWriter IINT/NTX to IIf	exchange $499 NT/399 NTX
Centris 610 to Quadra 660AV	exchange $399
Quadra 660AV TO PowerMac 6100/60	exchange $699
Quadra 800 to Quadra 840AV	exchange $499
Quadra 800/840av to PowerMac 8100/80	exchange $999
IIvx to PowerMac 7100/80	exchange $999
LC550 to LC575	exchange $499
IIvx or IIci to Centris 650	exchange $399
Classic to Classic II	exchange $199
IIsi to Performa 630 cpu swap	exchange $399

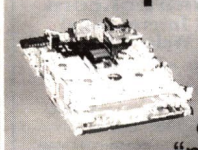
LC & LCII/LCIII to Quadra 605
•LC & LCII $449/LCIII $349

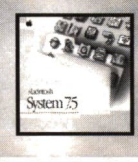
Quadra 950 8/500 **$1499**
Brand New!
1-Year Apple Warranty

ADB Mouse II **$49**
FREE mousepad

8MB DIMMS $239
8MB SIMMS $239

Replacement SuperDrives™
New $149
Refurbished $129
Available in original and newer "manual insert" styles





Diskettes or CD-Rom $25

11x17 Printing
Apple Color Printer
transparencies 360 dpi
ColorSync™
$699 NEW

Performa 578
The Family Macintosh
- 33Mhz MC68LC040 processor
- 8MB RAM, 320MB hard drive
- extended keyboard
- double-speed CD-ROM
- built-in speakers & microphone
- fax-modem: 2400data, 9600 fax

$1149 new

PRE-INSTALLED SOFTWARE
- Macintosh System 7.5
- ClarisWorks
- Quicken 4
- Best of HomeWorks Templates
- ClickArt Performa Collection
- Macintosh PC Exchange
- At Ease
- Grolier Multimedia Encyclopedia

...and lots more!

Macintosh CPUs

LCIII 4/0, no floppy or mouse NEW	$249.
*LC550 4/160/CD	$749.
LC580 8/500/CD	$999.
Performa 575 5/250/CD NEW	$999.
Performa 630 4/250/CD	$699.
*Performa 6100/60 8/250/CD	$1149.
Centris 650 4/0	$799.
Quadra 605 4/160 NEW	$649
Quadra 660AV 4/0	$749.
Quadra 840AV 0/0	$1149.
Quadra 800 8/0	$1149.
Quadra 950 8/500 NEW	$1499.
PowerMac 6100/66 8/350/CD NEW	$1299.
PowerMac 7100/80 8/500/CD NEW	$1399.
PowerMac 8100/80 8/500	$1499.

Monitors

Apple 13" Trinitron	$299.
*Apple 14" Performa Plus .29	$229.
*Apple 14" AudioVision	$349.
*Apple 15" MultiScan	$349.
Apple 16" Trinitron	$699.
Apple Portrait Display REFURBISHED	$329.
*Hewlett-Packard 17" with card	$749.
*Hewlett-Packard 20" with card	$999.
Radius PrecisionColor Pivot	$549.
Radius TPD 19" mono	$399.
Radius TPD 21" mono	$549
Radius PrecisionColor/20	$1199.
Radius Color Display/21	$1299.
RasterOps Sweet 16	$599.
RasterOps GDM-1950 20"	$849.

Video Cards

640 x 480

RasterOps 208 NEW	$119.

832x624

RasterOps 24Mx NEW	$199.
E-Machines DoubleColor LC	$149.

1024 x 768

E-Machines DoubleColor SX NEW	$149.
SuperMac Spectrum 24/Series IV NEW	$349.
RasterOps ClearVue/GS30 NEW	$299.
RasterOps PaintBoard Turbo NEW	$299.

1152 x 870

Apple 8•24	$229.
Apple 8•24GC NEW	$269.
Apple 4•8	$199.

PowerBook & Duo Display Adapters

E-Machines PowerLink Presentor-Duo	$349.
SuperMac SuperView-PowerBook	$299.

PowerMacintosh A/V Cards **$499**

Printers

*Apple StyleWriter 1200	$219.
Apple Color StyleWriter 2400	$269.
*Apple Personal LaserWriter LS	$299.
Apple Personal LaserWriter 300	$319.
Apple Personal LaserWriter NT	$599.
Apple Personal LaserWriter NTR	$699.
Apple LaserWriter IINT	$699.
Apple LaserWriter IINTX	$899.
Apple LaserWriter Pro 810 NEW	$2699.
Apple Color Printer NEW	$699.
Hewlett-Packard DeskWriter C	$219.
Hewlett-Packard 550c	$249.

Laser toner cartridges sold separately

PowerBooks

PowerBook 520 4/240 25Mhz 040	$1199.
PowerBook 520c 4/240 25Mhz 040	$1599.
PowerBook 170 4/80	$999.
PowerBook 180 4/80	$1349.
PowerBook 160 4/80	$1149.
PowerBook 150 4/120	$849.
PowerBook 145 4/80	$999.
PowerBook 140 4/40	$849.
DuoDock Type 1	$399.
Duo 230 4/80	$799.

We Buy, Sell & Trade PowerBooks
Call Purchasing Department
(318) 424-9791

SHREVE Systems
Celebrating 15 years in business

To Place Your Order Call:
1•800•227•3971
1200 Marshall St.• Shreveport LA 71101

VISA MasterCard AMERICAN EXPRESS DISCOVER

FAX (318) 424.9771
Customer Service (318) 424.9791
Purchasing & Information (318) 424.9791
BBS (318) 424.9713

Prices reflect a 2% cash discount and are subject to change without notice. Products are refurbished unless indicated as "new". Asterisk means *factory* refurbished.

Classified

Classified

Que Computers

RAM Specials

1/4mb 30 pin $25/125
1/4mb 64 pin $25/125
8mb 72 pin 60ns $229
4/6mb for PB $99/135

Mac & Peripherals

Mac Plus 1/4 mb w/keybrd mouse	$99/199
Classic II 4/80 $399 SE/30 4/80	$449
MacIIvx 4/200CD $499 **Mac IIci 4/80 $349**	
Mac IIfx 4/80 w/24 bit video card	$499
PowerPC 7100/80 8/700CD, new	$1599
Performa 636 4/250 new	$699
Performa 630 4/250 w/FPU new	$799
Apple LaserWriter 300 (Apple ref.)	$299
Apple LaerWriter IInt/f,	$499/599
Int/Ext.800k/FDHD, manual/auto	$29/99
SE/Classic 25-40MHz accelerator	$65/$99
Track Ball mouse $39, 13" Apple RGB $225	

Hard Drives

270mb new int. $119, 240mb ext $119
Ext. HD/CD case $39/29
540mb 2.5" internal for PB, new $189

Que Computers 612-623-9144
Mac/PC, New/Used, Buy, Sell, Upgrade
2418 E. Hennepin Ave., Minneapolis, MN 55413
fax 612-623-9155 Major credit cards accepted. No extra charge

Mac-Res-Q

PowerBook Floppy Drives:$89!
510-689-9488
We Help You beat The System 510-689-9487 Fax

APPLE SYSTEM 7.5	$19 !!
Duo Dock w/230MB Drive & FPU (N)	$399
LC 580 8/500/CD w/Ext. Kbd. (R)	$1099
PowerBook 520 4/240 (N)	$1199
PowerBook Duo 280 4/240 (N)	$1499
PowerBook 520c 4/240 (R)	$1549
Quadra 610 DOS Compatible 8/160 (N)	$999
Quadra 800 8/230 (U)	$1149
Apple Laserwriter 300/320 w/Toner (R)	$349/$499
Apple Parts Liquidation!!	
Apple CD300i (Apple p/n 661-0023)	$89
Apple CD300i Plus (p/n 661-0222)	$129
Apple Manual Inject Floppy (p/n 661-0121)	$99*
Apple Auto Inject Floppy (p/n 661-0474)	$89*
Apple Power Supply Blowout:*	
LC, II, III, Perf. 4xx, Quadra 605	$19
Quadra 900/950 / Q 800 to PPC 8100	$199/$109
C610 to PPC 6100 / IIcx to PPC 7100	$59
PPC 8500/9500 / Duo Dock	$129/$79

WebSite: http://www.macresq.com
Email: Sales@macresq.com
Qty. Disc. Available • N=New• R=Refurbished • Prices Subject To Change
*Less Than 5 Pieces Requires Exchange• H-P Authorized•Apple Service Provider

MacUSA

Since 1983
1(800)-809-0880
Voice: 818-704-8923
Fax: 818-704-9858

Power Macs

6100/7100/8100/CD...CALL
6100/7100/8100AV.....CALL
7200 75/90.....CALL
7500 100.....CALL
8500 120.....CALL
9500 120/132.....CALL
Workgroup Servers.....CALL

Performa Bundles

630/631/638/640.....CALL
5215/6116/6200.....CALL

Powerbooks

520 Call for Lowest
520C Prices on These
540C Hot Powerbooks.

For New Powerbooks, call our Toll Free Number!!!

Monitors
Apple, Radius, NEC, Sony

Printers
Apple, H.P., Epson, NEC

Scanners
Apple, H.P., Epson, Umax, Microtek, Agfa

Memory
4Mb/8Mb/16Mb/32Mb

Software Blowout!
Microsoft Office V4.2 ~~$525~~ $195
Word/Excel/Powerpnt $99Ea

Hard Drives
250Mb/500Mb/700Mb/1Gb/2Gb
Apple Parts and Service Available

Contact us via the Internet!
macs@ix.netcom.com
macusa@eworld.com
Doctorkan@aol.com

Dealer and International Orders Welcome.
We'll Beat Any Price!
Visa /MC/AmEx Welcome.
24422 Vanowen Street, Canoga Park, California, 91307, U.S.A.
Prices Reflect Cash Discount and are Subject to Change.

Infinity Micro

Apple UMAX HEWLETT PACKARD
One stop shopping for all Your software & hardware needs!
800 • 589 • 1234
tel 310•470•9426 fax 310•470•1956
2289 Westwood Bl. LA, CA. 90064
GCC TECHNOLOGIES Seagate radius DAYSTAR

POWERMACS		POWERBOOKS		PERFORMA	
6100/66 8/500/CD	1325	150 4/120	1025	550 5/160/CD w/ 14"	775
6100/66 16/500/DOS	1995	520 4/240	1395	578 8/250/CD	1099
7100/80 8/700/CD	1675	520C 4/240	1695	635 5/250/CD w/ 15"	1175
7100/80 AV 16/700/CD	1995	540C 4/320/R	2895	637 5/700/CD w/ 15"	1195
8100/100 8/700	2195	5300/100 8/500	1945	638 8/1G/CD w/ 15"	1445
8100/100 16/700/CD	2685	5300C 16/750	3995	640 DOS 16/1.0/CD	1795
8100/110 16/2.0/CD	2995	5300CS 8/500	3295	6200 16/1.0/CD	1799
7200/75 8/500/CD	1549	5300CS 16/750	3095	6300 16/1.0/CD/ 15"	2495
7200/90 16/500/CD	1949	190CS 8/500	2095		
7500/100 16/500/CD	2569	190 8/500	1745		
7500/100 16/1.0/CD	2769				
8500/120 16/1.0/CD	3995				
8500/120 16/2.0/CD	4375				
9500/120 16/1.0/CD	4145				
9500/132 16/2.0/CD	4595				

MONITORS		VIDEO CARDS	
PrecisionColor 17	775	PrecisionColor 8/1600	459
PrecisionColor 21	1475	Thunder IV GX 1600	1895
PrecisionView 17	875	Thunder IV GX 1360	2245
PressView 17 SR	1875	Thunder IV GX 1152	2775
Intellicolor 20e	1649	Thunder Color 30 1600	1575
SuperMatch21TXL	1795	Thunder Color 30 1152	1895
PressView 21T	2595	Thunder 24 GT	1299
PressView 21SR	2875	VideoVision Studio 2.0	3945
		VideoVision Std. Array	4695
		TrueVision Targa 2000	3695

PRINTERS	
LW 4/600PS	1135
LW Select 320	1795
LW Select 360	619
LW 16/600PS	445
Color 12/600PS	5495
Stylewriter II	179

"Custom Configuration Specialists" • *Lease or Buy* •
Duo MiniDock $129. no scsi
Aldus Pagemaker 4.2 $99. Ver. 4.2
AdobePhotoshop 3.01 $379. 3.01 Pwr.M.
PANASONIC KX-P 5400 Post Script L.2 300dpi $389.

YOU CAN'T BEAT THESE PRICES!

RADIUS COMPATIBLE SYSTEMS

81/110 8/730/CD- 110 MhZ Power!.....$1499*
81/110 16/730/CD- 110 MhZ Power!.....$1789*
*After factory rebate

CUSTOMIZABLE POWER MACS

PowerMac 7100/80 8 Ram/CD.....$1369
PowerMac 7100/80AV 8 Ram/CD.....$1666
Performa 6116CD 8/700/CD w/Monitor.....$1648
Performa 5215 8/Gig/CD w/15" Monitor.....$1889
Performa 6300CD 16/Gig/CD w/Monitor.....$2599
PowerMac 7200/75 8 Ram/CD.....$1299
PowerMac 7200/90 8 Ram/CD.....$1449
PowerMac 7500/100 16 Ram/CD.....$2548
PowerMac 8500/120 16 Ram/CD.....$3589
PowerMac 9500/120 16 Ram/CD.....$3350
PowerMac 9500/132 16 Ram/CD.....$3599

CUSTOM CONFIGURATION SPECIALS

7200/90 w/16 Ram, 500 Drive, 17" Trinitron Monitor, Ext KB, and a 3 year warranty!.....$2799
7500/100 w/16 Ram, Gig Drive, 20" Trinitron Monitor, Ext KB, and a 3 year warranty!.....$3967
9500/132 w/32 Ram, 2 Gig Drive, 21" Trinitron Monitor, Ext KB, and a 3 year warranty!.....$6899

THIS WEEK'S SUPER BUYS

Claris FileMaker Pro 2.1.....$49
Apple Personal Laser 300.....$349
Apple Color StyleWriter 2400.....$379

POWERBOOKS

Powerbook 190/66 8/500.....$1699
Powerbook 5300CS/100 8/500.....$2449
Powerbook 5300C/100 16/750.....$3999

POWER MAX Knowledge is Power The Right Computer Company

800-844-3599
Fax: (503) 624-1635 Local: (503) 624-1827
Call for our free catalog!
And find us on the World Wide Web at:
HTTP://WWW.Illuminatus.Com/PowerMax

Our people have been designing Mac systems since 1987. We don't just sell you a box and hope you don't call back.
We'll give you some advice, customize & bench-test your system, and support you before, during and after the sale. Call today and experience the PowerMax difference!

MediaGuide

BUY / SELL / TRADE

SIMMs and DIMMs - Call for best prices!

USED - *Call for daily specials!*

SE 4/20 (FDHD)...$249	Mac Plus 1/0.....$69
SE/30 4/0.....$399	Mac II 0/0 (FDHD)...$129
Duo 230 4/80...$749	Mac IIvx 8/250/CD..$749
Centris 650 8/250/CD	$849
Quadra 800 8/230/CD	$1249
16" Apple RGB	$599
Imagewriter II (w/ ribbon)	$125
LaserWriter Pro 600 (600dpi, 8MB)	$999
RasterOps 24STV Video In/Out Card	$599
Radius PrecisionColor Pro 24X	$599
Ext. Syquest 44....$89	Ext. 2x CD-ROM....$119
800K drive.....$35	FDHD drive.....$89

NEW

Connor 1060mb internal HD	$269
Microsoft Office 4.2.1 CD-ROM	$189
System 7.5.....$19	MS Word 5.1a...$49

(303) 936-5617
e-mail: MGSales@MediaGuide.com • Fax (303) 937-9790

MacWorks

"Low Prices, Great Service. . . That's The Deal!"

NFL™ Play Off Specials!

Genesis MP-4/132 - 16/2GB/CD	$13,999
PowerMac 9500/132 - 16/2GB/CD	$3999
LC 580* - 8/500/CD/14"- all in one	$1099
PowerBook Duo 280 - 4/240	$1549
PowerBook 520 - 4/240	$1249
PowerBook Duo 230* - 4/120	$949
DuoDock - 230HD/1MB VRAM/FPU	$399
Personal Laserwriter 320* w/toner	$499
System 7.5 (floppy version)	$19

Call for Pricing on Full Line of Apple Products

800-711-8679
e-mail: sales@macworks.com
web: http://www.macworks.com/

Voice 913-642-6336 • Fax 913-642-6466
UPS Ground Shipping only $5 with all CC orders • International Sales Welcome
Prices Subject to Change • All Prices Represent Cash Discount
FedEX/DHL/UPS • * Denotes Refurbished(90-day Warranty)

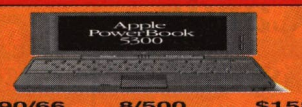
Power Macintosh

7200/75	8/500CD	$1399
7200/75	8/1GBCD	1619
7200/90	8/500CD	1589
7200/90	8/1GBCD	1759
7500/100	16/500CD	2469
7500/100	16/1GBCD	CALL
7500/100	32/2GBCD	3479
8500/120	16/1GBCD	3699
8500/120	16/2GBCD	4149
8500/120	48/4GBCD	5579
9500/120	16/1GBCD	CALL
9500/132*	16/1GB/CD	CALL
*Includes Video Card.		
9500/132	16/2GBCD	CALL
6100/66	8/500CD	1299
6100/66	8/500DOS	1959

Performa

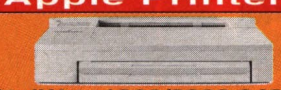
631CD	8/500CD	1329
640CD	12/500/DOS	1429
6116CD	8/700CD	CALL
5200CD	8/800/CD	1699
5215CD	8/1GB/CD	1849
6200CD	8/1GB/CD	CALL
6205CD	8/1GB/28.8	1929
6218CD	16/1GBCD	CALL
6220CD	16/1GB/TV	1849
6230CD	16/1GBMPEG	2279
6300CD	16/1.2GBCD	2549
QUICKTAKE 150		629
APPLE MPEG CARD		249

PowerBook



190/66	8/500	$1589
190CS/66	8/500	1879
5300	16/500	1699
5300CS	8/500	2189
5300CS	16/750	2715
5300C	8/500	3065
5300C	16/750	3585
5300CE	32/1.1	5329
2300C/100	8/750	3145
2300C/100	20/1.1MDM	4049

Apple Printers



StylWrtr 1200/2200	246/379
StylWrtr 2400/Pro	Call/389
LsrWrtr 4/600PS	829
LsrWrtr 360 W/Tonr	1098
LsrWrtr 16/600 W/Tnr	2099
LsrWrtr 12/600Ps	5969

WorkGroup Srvrs

6150/66	16/700CD	$2069
6150/66	16/700CDAS	2659
8150/110	1GB/CD/AS	4479
8150/110	1GB/INRNT	4079
9150/120	16/2GB/CD	5489
9150/120	16/1GB/AS	7499

FOURB TECHNOLOGIES

ORDER NOW AND SAVE
1-800-946-6221
International: 310.571.0506 Fax: 310.571.0510

iomega ZIP 100 $187
Power Macintosh 7100/80 8/700/CD $1398
Power Macintosh 8100/100 16/700/CD $2549
GLOBAL VILLAGE TELEPORT PLATINUM $189
hp 5 MP $969
AppleCD 600e $289

Apple Monitors

MltplScan 14"/15"	339/CALL
MltplScan 1705	815
MltplScan 1710AV/20	989/1859

NEC

NEC XV 15/17	459/739
NEC XE/XP 21	1795/2145

Gov't,Schools,Fortune 500 P.O.'s Welcome,FEDEX
Next Day Avail.Visa,MC,AMAX accepted.Prices are Cash Discounted for COD Cash/Cashier Check.

RADIUS

SuperMtch 17XL	739
PrecisionView 17	859
MultiView 21	1739
InteliColor 20e	CALL
PrecisionView 21	2169
PressView 21SR	2989
Two Page/20gs Mono	795
Two Page/21gs Mono	949
ThunderClr 30/1152	1559
ThunderClr 30/1600	1895

SONY

15SX		429
15SF2		479
17SF2		839
17SE2	NEW!	1099
20SF2	1600X1280	1775
GDM-2000CT	NEW!	3099

WACOM

ArtPad II 4X5	134
ArtZ II 6X8	293
ArtZ II 12X12	415
ArtZ II 12X18	685

GLOBAL VILLAGE

Teleport Gold II	98
Teleport Platinum	189
PwrPort Gold PC	168
PwrPort Platinum PC	319
PwrPort Platinum Pro	459

AGFA

Arcus II	1889
StudioScan	579
StudioScan IIsi	909

Nikon

CoolScan LS-10E	1299
Super CIScan 1000	1999
ScanTouch AX1200	1199

EPSON

ES-1000C	739
ES-1200C PRO-MAC	1129
Stylus Color II	448
Stylus Color	529
Stylus Color Pro	739

hp HEWLETT PACKARD

DeskWriter 660	245
DeskWriter 660C	389
DeskJet 850C Mac	529
DeskJet 1600CM	CALL
LaserJet 5MP	969
LaserJet 4M+	1839
LaserJet 4MV	2689
LaserJet 5SI MX	3729
ScanJet 4C Mac	888

GCC

Elite XL608	2199
Elite XL616	2479
Elite XL808	2789
Elite XL1280 24MB	3889
Elite XL1280 Super Size	5519

KELLEY COMPUTERS

Surplus Liquidation Specialists

New SYSTEMS

PowerMac 7200/75/8/500/4xCD	1552.00
PowerMac 7200/90/8/500/4xCD	1735.00
PowerMac 7500/100/16/500/4xCD	2465.00
PowerMac 7500/100/16/1000/4xCD	2739.00
PowerMac 9500/120/16/1000/4xCD	3999.00

MONITOR Deals

17" Trinitron Monitors, .26 dp (R) (832 x 624 @ 75hz)	399.00
17" Hi-res. Trinitron Monitors, .26 dp (R) (1024 x 768 @ 75hz)	449.00
20" Trinitron Monitors (R)	599.00

Weekly Specials

SuperMac 8•24 PDQ Vid. Card (N)	199.00
1.44 FDHDs *SPECIAL*	99.00
250MB HD-Apple (Quantum) (N)	109.00
40MB HD-Quantum (N)	49.00
240MB HD-Quantum (N)	99.00
External 40-watt Hard Drive Cases (N)	49.00
"Stealth" ADB Black Keyboard (N)	59.00
"Stealth" ADB Black Mouse (N)	25.00
System 7.5-CD or Diskette w/manuals (N)	22.00

Please call for a catalog!!
• Prices Reflect 3% Cash Discount
• Prices Subject to Change • Quantities Limited.

4323 Anthony Ct. #1, Rocklin, CA 95677
916-652-1880 • 916-652-1881 FAX
Please Call! 800-673-6227

MAC-PC BROKERS

"Low Cost Source for NEW MACS"

POWERMACS

7200/75 8/500/4xCD	$1,450
7200/90 16/500/4xCD	$1,795
7500/100 16/1GB/4xCD	$2,795
8500/120 16/1GB/4xCD	$3,890
9500/120 16/1GB/4xCD	$3,895
9500/132 16/2GB/4xCD	$4,725

PERFORMAS

630/8/500/CD/Bundle * (Free StyleWriter 1200)	$1,495
5215/8/1GB/4xCD/Power PC/Bundle	$1,929
6200/8/1GB/4xCD/Power PC/Bundle	$1,825
6220/16/1GB/4xCD/VI/TV	$1,995

Bundle includes display, keyboard and Software

POWERBOOKS

Powerbook 190CS/66 4/500	$1,944
Powerbook Duo 2300C/100 8/750/Mod	$3,695
Powerbook 5300CS/100/8/500/color	$2,450
Powerbook 5300C/100/16/750/color	$4,050
Powerbook 5300CE/117/32/1.1gb/color	$6,217

PRINTERS & ACCESSORIES

StyleWriter 1200	$246
StyleWriter 2200	$349
Apple Color Stylewriter 2400	$375
DeskJet 850C	$549
HP Deskwriter 660C	$415
Laserwriter 4/600	$735

Excellent prices on MAC Networking devices
"Call for any product not listed"
(305) 594-3833 FAX (305) 594-5864
1-800-622-5535

MAC FAST

1-800-829-4857

POWERMAC

7200/75 8/500/CD	$1,409
7200/90 8/500/CD	$1,799
7500/100 16/1GB/CD	$2,799
8500/120 16/1GB/CD	$3,749
9500/120 16/1GB/CD	$3,819
9500/132 16/1GB/CD	$4,299

PERFORMAS

5215 8/1GB/CD	$1,846
6200 8/1GB/CD	$1,846
6116 8/700/CD	$1,589
630 8/500/CD	$1,280

KEYBOARD

DESING	$ 74
EXTENDED	$144

MONITORS

MULTISCAN 14" / 15" APPLE	$330-369
MULTISCAN 17" NEW APPLE	$699
MULTISCAN 17" AV NEW APPLE	$999

POWERBOOK

190CS/66 4/500	$1,899
5300/100 8/500	$1,949
5300CS/100 8/500	$2,469
5300C/100 16/750	$3,990

PRINTERS

STYLEWRITER 1200	$226
STYLEWRITER COLOR 2400	$359
LASERWRITER 4/600	$819

NON DEFECTIVE RETURNS OR SHIPPED ORDER MY BE SUBJECT TO 15% RESTOCKING FEE.
ALL PURCHASES OVER $2500 THE SHIPPING IS FREE • NO MONITORS INCLUDED
DISCOUNT IN CASH/CASHIERS CHECK

FAX: (305) 593-8921
SHIPPING FREE • FEDEX ECON.

World Micro 1-800-580-0177

Powermacs

7200/75 8/500CD	1455.
7200/90 8/500CD	1596.
7500/100 16/500CD	2535.
7500/100 16/1000CD	2810.
8500/120 16/1000CD	3760.
8500/120 16/2000CD	4227.
9500/120 16/1000CD	3900.

Powerbooks

5300/100 8/500	1971.
5300CS/100 8/500	2490.
5300CS/100 16/750	3130.
5300C/100 8/500	3320.
190 CS 8/500	2114.
190/66 8/500	1736.

Call for special low pricing on memory and hard drives.

Call for Volume Discounts

9500/120 16/1000CD $ 3900.00

Monitors

14" multi.	332.
15" multi.	453.
1705	715.
1710AV	1040.
20" Multi	1920.

Performas

475 4/250CPU	545.
631CD 8/500	1329.
640CD Dos 12/500	1878.
5215CD 8/1000	1856.
6116CD 8/700	1577.
6200CD 8/1000	1856.
6205CD 8/1000	1949.
6220CD/VI/TV	1856.
6300/100 16/1.2CD	2599.

Printers

Style 2200	353.
Style 2400	365.
Laser 4/600	845.
Laser 16/600	2050.
Laser 12/600	6100.

World Micro Systems
(305) 716-0177
(305) 716 0277 Fax

Prices reflect a 3% cash discount and are subject to change without notice

Quantum

HARD DRIVES

170MB		$80
420MB	TrailBlazer	$149
730MB	Lightning	$175
850MB	Trailblazer	$215
1080MB	Fireball	$269
2100MB	Capella	$675
4280MB	GrandPrix	$985

*Please add $59 for External Hard Drive
External includes Power&SCSI Cable, Ext Terminator, Formatting Software, Installation Manual.

2.5" HARD DRIVES*

342MB	Toshiba	$159
540MB	IBM	$199

ENCLOSURES

Portable	$58
Zero Footprint	$58
4-Bay Case	$129
7-Bay Case	$229
Pocket Case	$29

*ALL HARD DRIVES & ENCLOSURES ARE BRAND NEW WITH 2 TO 5 YEAR MANUFACTURER'S WARRANTY. ALL HARD DRIVES COME WITH FORMATTING SOFTWARE. 30-DAY MONEY BACK GUARANTEE. UNLIMITED TOLL FREE TECHNICAL SUPPORT.
PRICES ARE SUBJECT TO CHANGE

MEMORY

1MB	1X8 80ns	$30
2MB	2X8 80ns	$69
4MB	4X8 70ns	$119
4MB	1X32 70ns	$119
8MB	2X32 70ns	$230
16MB	4X32 60ns	$479
1MB	VRAM	$69
4MB	PB5300	$177
8MB	PB5300	$310
16MB	PB5300	$559
24MB	PB5300	$880

DIMM MEMORY

8MB	$259
16MB	$495
32MB	$969
64MB	$1990
128MB	$Call

OTHER MAC STUFF

Extended Keyboard	$39
2-Year Warranty	
ADB Mouse	$19
5-Year Warranty	
Bulk Disks 50-Pack	$24
Phonet Connector	$7
Lifetime Warranty	
HDI-30 Adaptor	$19
Lifetime Warranty	

INTERNATIONAL ORDERS (360) 380-3999. GOVERNMENT & CORPORATE PURCHASE ORDERS ACCEPTED, NO CHARGE FOR VISA & MASTERCARD.
PRICES SUBJECT TO CHANGE

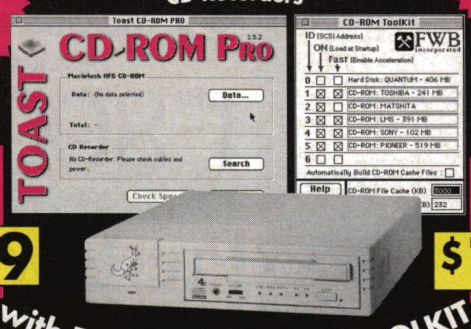
T.D. CURRAN
800-645-2533
Fax (360) 380-3900
T.D. Curran Inc.
3635 Haxton Way
Bellingham WA 98226

RECORDABLE CD

2X Includes 5 CD's

YAMAHA CD Recorders

SOLUTIONS THAT WORK



TOAST

MASTERLIST CD

2X WRITE /4X READ

4X

$1199

$1999*

with TOAST & CD-ROM TOOLKIT

Also JVC, SONY, Phillips, Pioneer and FWB CD-Recorders avail.

* 4X PRICE MAY NOT INCLUDE SOFTWARE

OPTICAL CARTRIDGES

128MB... $14.99
230MB... $19.99
650MB Optical ...$45
1.3GB Optical ...$59

CD-R BLANKS

$6.99
Verbatim KODAK or MTC
74 Minute • 4X & 6X Cert.

MACROMEDIA DIRECTOR

Author Your Own CD Titles $CALL

CD-DA for Audio CD's ...$399
DigiDesign Masterlist ... CALL

FWB HAMMER

Attn: Video Users

SCREAMING DRIVES

4GB Sledgehammer Array...$2799
8GB Sledgehammer Array...$3799
4GB Sledgehammer Wide w/PCI Card...$3799
8GB Sledgehammer Wide w/PCI Card...$4599
PCI JACKHAMMER CARD...$389

SYQUEST CARTRIDGES

44MB...$33 88MB...$37 105MB...$35 200MB...$70 270MB...$56

NEW and HOT!

PINNACLE APEX
4.6GB Optical
• Limitless Storage
• 17 ms Access / 4.5 MB per Sec
$1599

hot

iomega JAZ
1GB Removable HD
• 3.5" Removable Hard Disk Technologye
• 6.7 MB per sec. Ideal for Video
Both Include 1 Cartridge $599

MEDIASTORE

See us at http://www.mediastore.com
800•555•5551
ph. 714-997-5551 • fx. 714-997-5553 VISA MasterCard AMERICAN EXPRESS

iCN

INTERNATIONAL COMPUTER & NETWORKING

LARGEST WEST COAST INDEPENDENT Apple RESELLER, PARTS & SYSTEMS

TRADE IN YOUR OLD MAC FOR A POWERMAC

POWERMAC

9500/132 16/2G/CD	$3785
9500/120 16/1G/CD	$3329
8500/120 16/1G/CD	$3689
8500/120 16/2G/CD	$4039
7500/100 16/1G/CD	$2637
7200/75 8/500/CD	$1297
7200/90 8/500/CD	$1587
8100/100 8/700/CD	$2097
8100/100AV 16/700/CD	$2649
7100/80AV 16/700/CD	$1869
6100/66 8/500/CD	$1297
6100/66-DOS 16/500/CD	$1879

SPECIAL

AV card	$430
CACHE card 61,71,8100	$70
LaserWriter 4/600	$799
Apple Power Macintosh Upgrade Card	$495
P.Book 540c 4/320-R	$2685
Perf 550 4/160/14"Mon	$650
7100/80 8/700/CD	$1427
9500/120 16/1G/CD w/17" Apple Monitor & KB	$4349
9500/132 16/1G/CD w/ATI card,20" Apple Monitor & KB	$4990

DEMO

7200/75 8/500/CD	$1295
8500/120 16/1G/CD	$3290
Q950 8/500	$1295
Q800 8/230	$1495
Q840AV 8/230	$1687
Q650 8/230	$1365
PB 540c 4/320	$2650

APPLE MONITOR

14" Multi	$335
15" Multi	$380
1705 17" Multi	$797
17AV Multi	$997
20" Multi-R	$1395

PRINTER

LW 810	$1890
LW Select 360	$1175
Color SW Pro-R	$275
LW 16/600	CALL
GCC LW Printers	CALL
EliteXL 808 800dpi/8ppm/11x17	$2869
EliteXL 616 600dpi/16ppm/11x17	$2489
EliteXL 1208 1200dpi/8ppm/11x17	$3759

FOR TECHNICAL INFO. AND THE MOST RECENT PRICING VISIT OUR WEB SITE AT
Internet: http://www.icni.com
Email: icn@icni.com

COMPLETE UPGRADE

With Oringial Apple Logic Board & Parts

Q800*, Q840AV & 8100s to 8500/120	$1550
C610, Q610, Q660 to 6100/66	$790
Q650, C650 to 7100/80	$995
Q800*, Q840AV to 8100/100/110	$1150-1400
Powermac 8100/80 to 8100/100/110	$900-1150

*Add $100 to the Upgrade Price

POWERBOOK

5300c 16/750	$3649
5300cs 8/500	$2379
5300cs 16/500	$2739
5300 8/500	$1690
190cs 4/500	$1769
520 4/240	$1097
520c 4/240	$1649
Duo280c 12/320/Mod	$2845
150 4/240	$885

PERFORMA

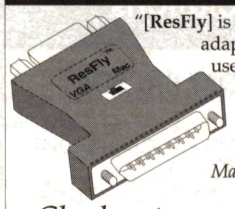
630 8/250/CD/14"Mon/Mod/KB	$1199
640 12/500/CD/15"Mon/KB-DOS	$1820
5215 8/1G/CD/Mod/15"Mon/KB	$1797
6116 8/700/CD/Mod/14"Mon/KB	$1599
6200 8/1G/CD/Mod/15"Mon/KB	$1789
6220 16/1G/CD/Mod/KB	$1850
6300 16/1G/CD/Mod/15"Mon/KB	$2599

GENUINE PARTS

TEL: 310-445-6600
FAX: 310-445-6611
Mon-Fri 8am-5pm PST

BUSINESS LEASING

VGA to the Macs!



"[ResFly] is a $25 universal adapter that allows users to switch on the fly among all supported Mac and VGA resolutions."
MacWeek, 4/10/95

Check out our complete line of video adapters and switch kits.

Free tech support!
Free shipping!
Money-back guarantee!

MacAdapt MC Visa AmEx
(510) 525-0789 fax (510) 525-5740
http://www.macadapt.com jzjames@macadapt.com

OWC

Serving the Mac Universe since 1988

Hard Drives

		Int.	Ext.
Quantum 840mb	12ms	$195	$249
Quantum 1080mb	9.8ms	$255	$309

=3 1/2 Mice in MacUser Magazine

Quantum 2.1gb	8ms	$799	$849
Quantum 2.2gb	8.5ms	$679	$729
Quantum 4.3gb	8.6ms	$999	$1079
Conner 2.1gb	9ms	$499	$559

SPECIAL! Powerbook Drives:

Apple 200mb	$139	$189
Quantum 256mb	$149	$209
Quantum 514mb	$259	$319

30-Day Money Back Guarantee on All Hds! Sys7.1 Installed & 30mb of free software. External version features platinum case with dual SCSI ports, Push-button SCSI ID & 40watt power.

No Surcharge!

Performa Systems

Performa 6300 System	$2599
Performa 6200 System	$1779
Performa 5215 System	$1799
Performa 640 DOS System	$1499

Memory

72 pin SIMMS		DIMMS	
4mb	$105	8mb	$259
8mb	$209	16mb	$469
16mb	$409	32mb	$899
32mb	$839	64mb	$1799

Level 2 Cache

for NuBus PowerMacs		for PCI PowerMacs	
256k	$99	256k	$199
512k	$199	512k	$299

VRAM for PCI PowerMacs

1 Mb	$79	2 Mb*	$199

EA Research 16/1600 4mb $549

PowerMacs

7200/75MHz	8/500/CD	$1329
7200/90MHz	16/500/CD	$1799
7500/100MHz	16/500/CD	$2599
7500/100MHz	16/1000/CD	$2799
8500/120MHz	16/1000/CD	$3899
9500/120MHz	16/1000/CD	$3499
9500/132MHz	16/2000/CD	$3999

Custom Configurations Available

OWC Rocket

84mhz Accelerator for both PowerMac 6100s and 7100/66 $49.95

Other World Computing

224 West Judd Street
Woodstock, IL 60098
International: (815) 338-8685
Fax: (815) 338-4332
Prices and specifications subject to change w/o notice.
15% restocking fee on returned merchandise unless otherwise noted.

800-275-4576
INI ILLINOIS & INTERNATIONAL:
(815) 338-8658 / FAX (815) 338-4332

Media for Less!

CD-R's

74Min ... 4x compatible ..$7.50

DAT Tapes

4mm/60m, 1.3GB	$5.99
4mm/90m, 2.0GB	$6.99
4mm/120m, 2.5/5.0GB	$16.99

Cartridges for Syquest Drives

44MB Data Cart	$33.00
88MB Data Cart	$38.00

Komag 5.25" MO Media

600MB...512b/s $35.00
650MB..1024b/s ... $35.00

Memory Merchants

Order By Fax: 415/595-4643
1-800-799-3475
CALL FOR OTHER PRODUCTS

Optical Cartridges

KYOCERA

World's Largest 3.5" MO Producer
Lifetime Warranty

$19.99 230MB

Magneto Optical Disks
128MB MO Disks . . . $15.99

Memory Merchants

4 Shratton Avenue, San Carlos, CA 94070
800-799-DISK *Since 1989*
http://www.mmerchants.com/

perisys CURRENT PRICING

322 31st St. Hermosa Beach, CA 90254
CALL TOLL FREE 800/581-6299
For our full line of products
visit us on the Web at www.perisys.com
email perisys@perisys.com

VISA MasterCard

REMOVABLES

	INTERNAL	EXTERNAL
Syquest 200M *Includes 1 Cartridge*	$419	
Syquest 270M *Includes 1 Cartridge*	$415	
Syquest EZ 135 *Includes 1 Cartridge*	$224	
Fujitso Dynamo *Includes 1 Cartridge*	$499	
Olympus Deltis *Includes 1 Cartridge*	$489	
Syquest 200M Cart	$62	
Syquest 270M Cart	$52	
EZ 135 Cart	$19	
230M Optical Media	$19	

HARD DRIVES

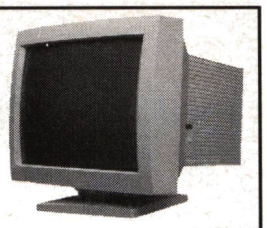
	INTERNAL	EXTERNAL
Quantum Tb850S	$185	$255
Quantum FB1080S	$249	$319
Quantum EM2100S 2.1G	$649	$719
Quantum Capella 2.2G	$679	$749
Quantum Atlas 2.1G	$720	$790
Quantum Grand Prix 4G	$975	$1075
Quantum Atlas 4G	$1009	$1109
Quantum DY 514S 2.5"	$275	$390
Toshiba MK2526FB	$250	$320

*All external kits come with FWB Hard DiskTool Kit, cables, and a terminator (active on drives over 1G). Removable kits also come with (1) media.

Classified

Classified

$999 for a new 20" monitor?



Yes, you read it right.

19"/20" Multiscan Color Monitor to 1280x1024 (pictured)	$999
17" Multiscan Color Monitor .26 dot pitch to 1280x1024	$579
17" Multiscan Trinitron Monitor .25 stripe pitch to 1024x768	$689
17" Radius Precision Color Display/17 (refurb, 90-day warranty)	$745
17" Portrait Display Labs Pivot 1700 .26 dot pitch	$999
20" Radius IntelliColor 20e (refurb, 90-day warranty)	$1499
20" Sony 20se Multiscan Trinitron Monitor to 1600x1280	$1899

RAPIData VISA MasterCard
800 316 8816

Corporate/government P.O.s accepted
Outside U.S. 916-391-8816 • Fax 916-391-8330
14 Moses Court, Sacramento, CA 95823
No credit card surcharges
Dealer inquiries welcomed

Apple II & Macintosh

COMPUTERS • PARTS • EXCHANGE REPAIRS

Specialists in used and reconditioned systems, monitors, printers & parts. Call for a free catalog.

1-800-274-5343

Int'l: 617-275-4600 FAX: 617-275-4848

Pre-Owned Electronics INCORPORATED

205 BURLINGTON ROAD, BEDFORD, MASSACHUSETTS 01730

HAWKE
BUSINESS SYSTEMS
Flemington, NJ 08822

(800) 875-2610

Fax - (908) 782-7027
Email - MacHawke@AOL.COM

BUY - SELL - TRADE
Macintosh Computers and Peripherals

Complete Color Packages

Mac Lc III 4/80	$599.00
Mac IISi 5/80	$649.00
Mac IICi 5/80	$799.00
Mac IIFX 8/160	$949.00
Quadra 700 4/160	$1099.00

All Systems Above Include Extended Keyboard, Mouse & Hi Res Color Monitor
6 Month Parts and Labor Warranty
Quadra 900 Centris 650 Mac IIVx
Service & Parts for Mature Macs
Personal LaserWriter LS - $399.00
Apple Portrait Monitor - $199.00

GREAT PRICES ON QUALITY MACS... CALL TODAY!

GE Capital Computer Remarketing Services
Our Business Is Helping Yours®

VALUE PACKAGES

APL MAC 2CI 80 w/ monitor	$ 795
APL MAC 2SI 80 w/ monitor	695

DESKTOPS

APL C610 80	$ 495
APL C610 230	695
APL C610 230CD	795
APL C650 80	895
APL C660 230CD	995
APL MAC LC 80	295
APL MAC LC2 80	395
APL MAC LC3 80	495
APL MAC LC520	695

POWERBOOKS

APL PB 180 120	$ 1,395
APL PB 540C 320	3,795
APL PBD 280C 320/4	2,795

- *30-day warranty included*
- *All sales subject to availability*
- *Broker Services available*

VISA MasterCard

1-800-431-7716

REFURBISHED/USED MACS & PERIPHERALS

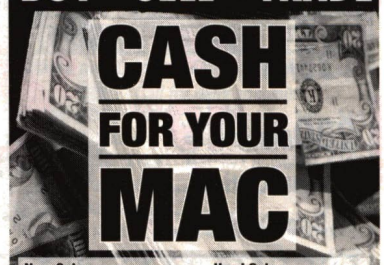
Mac IIsi 5/80	$299
Mac IIci 4/80	$359
Mac LC III 4/160	$419
Apple Portrait Display	*Call*
LaserWriter IINT 2MB	$399
LaserWriter IIf 4MB	$549
LaserWriter Pro 810	$1399
Apple CDSC 1x Ext.	$19
Apple CD-150 1x Ext.	$39

Other Products Available...Call

1-800-281-3661
VISA & MasterCard Accepted

DataTech Remarketing, Inc.
471 Myatt Dr., Madison, TN 37115
615-860-4422 • Fax 615-860-0390

BUY • SELL • TRADE



New Sales	Used Sales
PB 5300cs 8/500 $2645	Perf. 638 8/350CD $845
PPC 9500 16/1Gig CD $3995	Centris 650 8/230 $995
1705 17" Apple Mont. $725	Mac II 0/0 $149
Pagemaker 5.0 $395	Laser IIf $695
Laser 16/600 $1895	Port Stylewriter $179
Spigot AV $395	PB 520 4/160 $1295

New & Used Mac Sales and Service
Corporate Customers: Ask About Our Rental Program

MAC-RENTALS REMARKETING
1-800-756-6227
7924 Ivanhoe • La Jolla, CA 92037 • Fax: 619-454-1360

Credit Card

Authorization & Electronic Deposit Software

- Automatically authorizes and deposits all credit card sales -- individually or in batches.
- Integrate into your sales system using AppleEvents, AppleScript & import/export.

INTERNET COMMERCE READY!
MacAuthorize®
POS Credit Developers since 1981

800/483-5526 • 408/274-1110
info@tellan.com
http://www.tellan.com
Tellan Software, Inc

maxedsystems
Computer Sales
New / Used / Trades

WELCOME TO 1996!!! LET'S SAVE

PPC 8500 120 16/1/CD $3395
Apple Factory Original
PPC 8500 120 32/2/CD* $4235
PPC 8500 132 16/1/CD* $4150
PPC 8500 132 32/2/CD $4920
*ASSEMBLY

ANCIENT GREEK MAC TRIVIA FOR YOU
What is Ancient Greek Name for PPC Gods ?

Best Seller !! 8500 Original Case new
QUADRA 840AV TO PPC 8500* ..$1595
QUADRA 800 TO PPC 8500* $1795
*Trade in Your Quadras

MAXEDOPOLIS
HOT PRICES, COOL ATTITUDES
619•623•1575
4250 EXECUTIVE SQ. Ste #410, LA JOLLA, CA 92037

Connect to: IBM midrange & mainframe
UNIX • DEC • HP • Tandem
DG • Honeywell & other hosts

Terminal emulation solutions
VICOM MultiTerm

- 36 business emulations including 3270; 5250; Wyse 60/50; SCO ANSI; TVI 950/925; VT420/320/220; VT340/241 ReGIS; HP2392A; DG410/211; Tandem 6530; Adds VP 50;VIP7800 + 18 more
- IND$File file transfer for IBM
- Customized & remapped keyboards, menus, buttons
- Ethernet, Tokenring; Novell SAA, WallData SNA•ps, Andrew gateways supported.
- Native on Power Macintosh.
- Works with VICOM SoftRouters
- FTP Client Pro & CTB Telnet Tool also available.
- Demo copies for evaluation available on www site.

>> The most powerful terminal emulators available <<

Vicom Technology
email: sales@vicomtech.com
Tel:1-800-818 4266
Web: www.vicomtech.com

Client / Server Solutions

VICOM Pro SDK

- Build GUIs to mainframe/mini host application & data
- Build GUIs to SQL, Sybase, Oracle, database systems
- Transition from legacy systems
- Professional development tools with compiler, project manager, debugger, datascope, GUI builder
- Powerful programming language

>> One-stop solution <<

Vicom Technology
email: sales@vicomtech.com

Internet access for your entire LAN

VICOM Internet Gateway

- Multiple Macs & PCs on a LAN can simultaneously share one internet account & IP address
- Save costs by sharing one account
- Automatic connection with transparent & proxy addressing
- Modem & ISDN support
- Central control over which sites can be accessed

>> Demo copy available <<

Vicom Technology
www.vicomtech.com/vig.main

Send Messages from Your Macintosh to Alphanumeric Pagers: PageNOW!

Wireless Communications Software

Visit Us at Macworld Booth 4181

■ **Send full-text messages from any Mac to any alphanumeric pager:** Enter and manage text messages, send them via standard or net modem. Page individuals or groups. Splits long pages into subsequent smaller ones. Paging services pre-defined. Message log records all activities for later verification. Pager Preview.
■ **Receive e-mail, voice mail on your pager:** Get wireless e-mail from QuickMail, cc:Mail, MS Mail, Eudora, Emailer, AOL, eWorld, CompuServe, AppleLink, PowerTalk. Filter unwanted messages by subject, sender, or arrival time. Voice mail notifications from PhonePro, MegaPhone, MaxFax, CyberPhone.
■ **Have your pager remind you of your daily appointments:** Schedule full-text alarm pages or link PageNOW! to Now Up-to-Date, FileMaker, or 4D.
■ **Monitor your networks wirelessly:** Link your pager to AG Group's Skyline, Peek, or Satellite, and receive *pro-active* network emergency notifications.

■ **Write custom paging solutions in AppleScript:** Fully controllable with 14 Apple Events. Comes with dozens of AppleScript examples on disk.

PageNOW! **Personal Edition**	**$79.95**
PageNOW! **Personal Edition** (5-Pack)	**$249.00**
PageNOW! **Workgroup Edition:** Share one modem, phone line for 1 AppleTalk zone	**$495.00**
PageNOW! **Enterprise Edition:** Same as Workgroup Ed., but unlimited zones	**$995.00**
Workgroup Gateways: Gives pagers LAN e-mail addresses — specify QuickMail, MS / StarNine Mail, WebSTAR, Eudora, ListSTAR	**$495.00 each**

1-800-799-1718 mark/space communications products

Free Expert Advice: (408) 293-7299 · Fax: (408) 293-7298
mspace@netcom.com · ftp://ftp.netcom.com/pub/ms/mspace
111 W St John St · 2nd Floor · San Jose · CA 95113 · USA

ISOMEDIA

2441 152nd Ave NE, Redmond, WA 98052
(206) 869-5411 • Fax (206) 869-9437

800-468-3939

CD-ROM SERVICES

- **Premastering and Duplication**
  Macintosh HFS, ISO 9660, Hybrid, Mixed Mode, Audio, RockRidge, MSCD or CDPLUS
- **CD-ROM Replication and Fulfillment**
  One-Offs, Short-Runs and full Replication
- **Data Conversion**
- **Quick Time and MPeg Video**
- **Scanning and Imaging Services**

Serving you Since 1991

Blank CDR-74 minute Media
$7.95 in volume

World Wide Web
http://www.isomedia.com

Cutters: •Sony •Yamaha •CDE100 •Pioneer
Software: •Toast •OMI •Sony •Gear •Incat

COLOR MONITORS REPAIRED

Flat rate pricing:
RADIUS • SONY • RASTER OPS
IBM • HITACHI • MITSUBISHI

OVER 1,000 MODELS LISTED.
QUANTITY DISCOUNTS AVAILABLE

Each monitor is cleaned, adjusted to factory specs, and backed by a six month warranty on parts and labor.

For Pricing Call
800-682-5175
3E Corp. Chicopee, MA

DRIVE REPAIR & DATA RECOVERY

MAC, IBM, DOS, NOVELL, UNIX, LAN, OS/2, NT SYSTEM, SUN & TAPE DRIVE

SET-UP & CONFIGURATION NETWORK COMMUNICATIONS

FREE ESTIMATES, LOW RATE HARD DRIVES ARE AVAILABLE.

DATA RECOVERY TECHNOLOGY
5029 Steven Creek Blvd., Santa Clara, CA 95051
PHN 408-249-1986
FAX 408-249-1987

800-WE-FIX-MACS

Component Level Macintosh Repair

Compare and Save!

- 24 Hour Turnaround
- Guaranteed Lowest Prices
- Longest Warranties
- FREE Diagnostics
- Largest Inventory of Parts
- Advance Exchanges
- Toll Free Tech Support
- Established 1989

PowerBook, LaserWriter & Radius Specialists!
Call for Complete Price List

(800) 933-4962 (408) 988-2334
2306 Walsh Ave, Santa Clara, CA 95051

Since 1989, We've Put More Lives Back Together Than Oprah, Donahue, and Dr. Ruth Combined.

They aren't just documents and files. They're your life. And that's the way we treat them when you come to us for data recovery. Since 1989, we've restored information that has helped McDonnell Douglas fly high high, kept Mobil Oil in the black, and allowed Johns Hopkins University to stay on the cutting edge of medicine.We can do the same for you, too. Quickly, efficiently, and painlessly. So, the next time you experience data loss, give us a call.
We'll help you make the most of a bad situation.

800-743-0594
TOTAL RECALL®
THE DATA RECOVERY COMPANY℠
Hard Drives. Floppy Drives. Optical Drives. Syquest and Bernoulli Media.
www: //usa.net/totrecal Phone 719-380-1616 Fax 719-380-7022

Data Recovery

- Expertise in Macintosh & virtually every operating system & storage device - including tape & removable media.
- 24-Hour worldwide support with on-site, weekend, and priority service.
- Professional service authorized by major manufacturers.

Ontrack® DATA RECOVERY
CA: 1-800-752-7557
MN: 1-800-872-2599
DC: 1-800-650-2410
International: +44 181 974 5522 • Japan: 81 429 32-6365
Internet: http://www.ontrack.com

MOUSTRAK™ Inc.

"The Original Mouspad Company"

YOUR LOGO HERE

YOUR LOGO HERE

- Drop shipments
- Promotional discounts
- Custom printing & shapes
- 48 hour turn-around for samples
- We supply the largest users in the industry

***Call Toll Free* 1•800•221•6687**
Distributor Inquiries Welcome
Carson City, NV 89706 **FAX # (702)884-1827**

MAC REPAIR & UPGRADE

800-622-7977

24 HOUR SERVICE TURNAROUND
LONGER WARRANTY
FREE DIAGNOSTICS
COMPETITIVE PRICE

- Specialize in component repairs
  - -Power Mac
  - -Power Book
  - -Logic boards
- Advance Exchanges

Phone: 408-720-9899
Fax.: 408-720-9459
720 East Evelyn Ave.
Sunnyvale, CA 94086
http://www.dttservice.com

DT&T MACINTOSH SERVICES, INC.

DATA RECOVERY IN HOURS.

- Over 10 years of experience with clients worldwide including Apple, NASA, & FedEx.
- We've recovered more than half-a-million megabytes of Mac data alone.
- You only pay when there's a recovery.
- Express One-Day Service is available.
- Call 24 hours a day.

LAZARUS DATA RECOVERY
Working at the speed of business.
800-341-DATA
415-495-5556 • FAX 415-495-5553 • RESTRICTIONS MAY APPLY
381 Clementina Street • San Francisco, California 94103

We can save it!

DRIVESAVERS® DATA RECOVERY

800 440-1904
All storage devices • All platforms
www.drivesavers.com
400 Bel Marin Keys Bl, Novato, CA 94949
Ph: 415-382-2000

Artist

Our Artists Enjoy Florida in the Winter. DO YOU?

If you are a Mac-friendly artist with a taste for sun, sports and fashion, **Nutmeg Mills** in Tampa, Florida has an opportunity for you! We have recently added positions in our art and design departments due to an expansion in the youth licensed sports apparel market. We are interested in artists who have used Adobe Illustrator and Photoshop, as well as a creative flair for new twists on themes. If you fit the bill, and shiver just thinking about the Blizzard of '96, we want to hear from you! Please send your resume and samples of your work to:

Human Resources Manager
4408 W. Linebaugh Ave., Tampa, FL 33624
EOE M/F/D/V

Marketing, Sales & Engineering Positions Graphic Arts & Telecom Software Publisher

Group Logic, a Washington, DC-based electronic publishing telecom software developer partnered with Adobe Systems, seeks highly motivated professionals to create, market, and sell leading edge telecom software products for graphic arts customers, including printers, color separators, ad agencies, corporate creative services. Competitive salary and benefits packages. Opportunity for immediate and major contributions.

- **Software Marketing Project Manager** to design, implement, evaluate direct marketing campaigns for electronic publishing software products; projects incl. direct mail, trade shows, internet marketing, collateral creation, public relations, research & strategy. 2-5 years experience; knowledge of graphic arts business, electronic publishing systems preferred.
- **Software Sales Rep** to sell electronic publishing telecom software direct & via VARs to printers, color separators and their customers. 2-5 years experience; proven ability to sell, present, demonstrate; experience with trade shows, seminars, resellers, knowledge of graphic arts business, electronic publishing systems, Mac-based graphic arts applications preferred.
- **Software Engineers** to create commercial electronic publishing and telecom software products; participate in all development phases, incl. specification, design, coding. Professional development experience req'd; must know Mac, Windows 3.1 &/or Win32; C++, C, or Pascal; MacApp, MFC, or similar class libraries; networking & telecom APIs, programming.

Send/fax resume, cover letter to Group Logic, 1408 N. Fillmore, Ste 10, Arlington, VA 22201, Attn: Andy Lewis. Fax: (703) 528-3296. E-mail: info@grouplogic.com. EOE. No calls please.

CD-ROM PRODUCTION

CALL US FOR COMPREHENSIVE, QUALITY SERVICE:

- PREMASTERING • ONE-OFFS
- MASTERING AND DUPLICATION
- PACKAGING

DESKTOP CD RECORDERS – *New lower prices!*

Toast CD-ROM Pro	$399
Sony 2x, Toast	$1199
Yamaha 4x, Toast	$2388

Blank discs and labels too!

Telephone: 415-961-4649
Fax: 415-962-5333
Internet: sales@catalogic.com
CATALOGIC® 2685 Marine Way • Mtn View, CA 94043
800-255-4020

Mouse Pads

Custom Printed
- Your Logo Design
- Fast Turnaround
- Guaranteed Quality

Plastic
Cloth
Wrist Supports

MicroStore™
800-962-8885
FAX: 612-665-2604
LE SUEUR, MN 56058

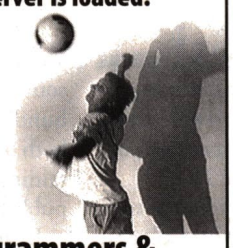
ACTION

MacWEEK Marketplace Shoppers have wide ranging product needs. Last year, on average, they bought 19 different products from Marketplace ads.

ADVERTISE HERE, WHERE MAC VOLUME BUYERS BUY DIRECT!
CALL 800-825-4237

Source: 1994 MacWEEK Marketplace Subscriber Study

"Our Server is loaded."



–MacXperts Programmer & Volleyballer raves about having the best development toys anywhere.

Programmers & Adventurers Wanted

MacXperts is a software development company with immediate openings for Macintosh & Newton programmers with C, C++, OpenDoc, and other experience.

Take the first step to adventure.
Call Michael Ruttle at:
1-800-356-8040 or fax / 804-358-3847
Internet: xperts@infi.net
AppleLink: xperts AOL: MacXperts
http://www.macxperts.com/~xperts

Macintosh Software Developers

We provide staffing services to companies developing commercial software products. Our focus is on R&D jobs for software engineers, SQA, marketing, hardware design, engineering management, etc. We're wired into the Mac development community.

Software developers register with Scientific Placement by providing a resumé that is retained in our database. They are then notified whenever a job search overlaps their qualifications and interests. We monitor certain job markets nationally and over the long term.

Interested employers are invited to inquire about our services. Developers wishing to register should send a resumé and call or eMail for a marketability assessment. Our charges are contingent upon a successful placement and are employer paid.

Scientific Placement, Inc.
http://www.scientific.com
800-231-5920 800-757-9003 (FAX) eMail: das@scientific.com
Houston: Box19949, Houston, TX 77224 713-496-6100 Fax 713-496-0373
Silicon Valley: Box 71, San Ramon, CA 94583 510-733-6168 eMail: Beth@spica.bdt.com
Boston: Kenmore Station, Box 15225, Boston, MA 02215 617-424-8372 eMail: jen@spbos.pn.com
Austin: Box 202676, Austin, TX 78720-2676, 512-260-0123 eMail: lej@zilker.net
eWorld: spi, AOL: davesmall, AppleLink: D1580, Compuserve: 71250,3001

Classified

Extreme 3D

From Page 1

one copy with the same serial number for modeling and scene building, however.

Macromedia MacroModel users will feel at home: It, too, is a spline-based modeler that lets you draw profile shapes using Bezier curves. You can also import Macromedia FreeHand 4.0 and 5.0 files, as well as other file formats. Once a profile has been made 3-D, you can edit the Bezier control points of its curves or reduce the object to a 3-D mesh of Bezier control points. Editing models like this is fairly simple, though the level of control over shapes and angles won't suit architectural or mechanical models, despite a good selection of snaps and numeric controls. However, Extreme 3D excels at creating "spliney" organic shapes.

You can trim and stitch surfaces, but Extreme 3D's trimming requires you to use a Knife tool or draw a profile path; this is not as useful as true Booleans, but it's a welcome addition.

Almost everything can be animated in Extreme 3D, including individual Bezier vertexes. Lights and objects can be endowed with object tracking; individual properties of procedural textures and a texture's mapping can be animated. Motion paths are Bezier curves you can edit like any other curve in Extreme 3D, including adding smooth vertexes or cusps and snapping them to other objects.

Extreme 3D doesn't offer morphing, per se, but the capability to animate individual vertexes is more useful for character animation and probably has more potential in the long run. While it lacks inverse kinematics and velocity curves, it does have good object linking, à la MacroModel, and ease-ins and ease-outs are supplied. Extreme 3D also lacks spine deformations and effects such as collision detection, particle effects, explosions, 3-D sound and real-world physics.

Material world

Extreme's renderer is a procedural Phong engine well suited to animation, though it lacks a lot of the features in Pixar's RenderMan (which is unavailable to Extreme 3D users). Like RenderMan, it uses procedural shaders, which work well for textures such as marble but lack features such as Boolean operations and displacement.

You can apply bit-mapped textures, but only one per object. This differs from many 3-D programs that let you layer textures. You also can't use animations as texture maps.

In addition to the usual mapping types, a projection map feature lets you apply a single texture to multiple objects as one. Intrinsic Mapping, meanwhile, lets a texture conform to an object's surface — and you can view and drag it in real time.

Extreme 3D has fast preview rendering of accurately texture-mapped shaded objects. However, it doesn't support QuickDraw 3D (or any other 3-D API), so hardware-assisted preview rendering isn't available. It also doesn't support Apple's 3DMF (3-D metafile format) and there's no built-in support for Virtual Reality Modeling Language.

On the bright side, the renderer offers the usual spot, point and distant light types, and the spotlights have a Dusty option, so they can be rendered as visible beams. The final-quality renderer produces natural-looking scenes with good anti-aliasing — with speed well-suited to video-resolution animation.

Extreme 3D's distributed rendering scheme is fairly fast and efficient on a small network; we've yet to test it across a large network of mixed machines. Submitting jobs is easy via a distributed folder. All machines in Render Server mode watch this folder and divvy up the animations' frames as new jobs arrive. (Extreme 3D won't break up rendering of single frames among machines.) A scheduling dialog on the master machine lets you reorder and reroute jobs.

Conclusions

There are a few too many missing features in Extreme 3D for it to completely eclipse any existing product. But for those who need Bezier spline modeling tightly integrated with easy-to-use, powerful animation, it's a very solid animation package. For sites that need a cross-platform product or those with a wealth of idle Macs or PCs that could be busy rendering, it may be a good investment.

Macromedia Inc. of San Francisco is at (415) 252-2000 or (800) 989-3762; fax (415) 626-0554; http://www.macromedia.com. □

QuickTime

From Page 1

users can later replace the 3-D object with another one and retain such attributes as lighting and animation.

Another improvement slated for the next QuickTime is the ability to have audio and video tracks dynamically resynchronize. One problem with using QuickTime for professional digital video is that audio and video tracks can get out of sync in long movies. With this new feature, users will be able to set points where sound and motion will be synchronized automatically.

Although QuickTime 2.1 supports MPEG playback, it requires a hardware decoder. When the next version of QuickTime ships, Apple will offer free MPEG playback software. Tim Schaaff, engineering manager for QuickTime, said the software decoder will allow full-motion MPEG playback in a 320-by-240-pixel window on a Power Mac using a 120-MHz PowerPC 604.

Users with lower-end machines will still be able to play back MPEG, although at less than optimal performance. Schaaff said that any QuickTime accelerator, including the $300 XClaim MM, which ATI Technologies Inc. debuted earlier this month, will also accelerate the MPEG decoder. The playback software will require a Power Mac.

Other features, which might not appear in the next version, slated for QuickTime include the ability to automatically chain multiple QuickTime files to get around System 7.5's 2-Gbyte file-size limitation and alpha-channel support, including traveling mattes. Other potential features are support for additional RGB and YUV color-space standards; gray-scale mattes; and expanded timecode support, including source tape data beyond tape name, edge code and subframe timecode definition for audio. Apple said that over the next few months it will publish details on its proprietary video formats, including Cinepak and Apple Video.

Apple formed a committee of attendees to work on a new, nonproprietary standard for Motion-JPEG. Currently, most major hardware JPEG solutions each have their own flavor of JPEG, making it difficult to get the best performance when playing a JPEG file compressed with one company card on a competitor's solution.

Schaaff said the goal of the group, which includes most of the major JPEG vendors, will be to come up with an interlaced JPEG format agreement. The committee should complete the first draft of the standard by the National Association of Broadcasters show in April in Las Vegas. Schaaff said it is too soon to say if hardware changes will be required to support the new standard. □

Inkjets

From Page 1

at approximately the same price point, according to sources. While the current model's top black-and-white resolution is 720 dpi, its maximum color resolution is 360 dpi; the 2500 will boost color resolution to 720 by 720.

The new printer will reportedly be based on the same engine as Canon Computer Systems Inc.'s BJC-610, which is available only for Intel-standard PCs. The Canon device offers CMYK output at a rate of 1.3 letter- or legal-size pages per minute and features separate CMY and black cartridges.

Apple's model will feature enhancements to the company's current color-screening algorithms as well as built-in hardware compression that sources said will increase output speeds to almost those of the 2400.

The 2500 will put Apple's color output on par with the $649 Epson Stylus Color II, which has a street price of about $450. The Stylus Color II has led the Mac inkjet pack with resolutions of 720 by 720 dpi (see 09.04.95, Page 6). While the Epson printer requires special coated stock to print at 720 dpi, sources said the Apple device will be able to print high-resolution images on plain paper.

Meanwhile, Apple is also focusing its efforts on entry-level color users with the Color StyleWriter 1500. Sources said the new printer will cost about $325.

The 1500 will be based on a Canon engine; it will output 720 dpi in black and white and 360 dpi in color. Unlike the dual-cartridge design of the higher-priced model, the 1500 will use a single CMYK or black cartridge.

The 1500 is designed to take on HP's DeskWriter 600, which offers black-and-white and color output at resolutions of 600 and 300 dpi, respectively. The HP model carries an estimated street price of $299 (see 07.24.95, Page 4).

The arrival of the printers will also represent a new bundling opportunity for Apple, sources said. Mirroring Canon's software-bundling efforts in the Windows market, both models will ship with a CD-ROM containing a variety of image-editing utilities, publishing software, fonts and clip art.

In addition, Apple is reportedly preparing bundles for specific market segments, especially new users. Sources said the package deals will pair the printers with a variety of Mac models and software products.

According to sources, the bundling strategy is aimed to strike a blow at HP, Apple's main competitor for point-of-sale peripheral bundles.

Apple declined to comment. □

INTEGRATE MACINTOSHES – with – Sun/SGI/HP

K-AShare – allows Macintosh computers to use a UNIX host as an AppleShare file server.

K-FS – enables UNIX users to access AppleShare volumes on a Macintosh.

K-Spool – allows Macintosh and UNIX users to share PostScript printers anywhere on the network.

FullPress – offers integrated prepress file-sharing and print-spooling, *including OPI!*

Point and click UNIX GUI...
No additional Macintosh software required!

Xinet
2560 Ninth Street
Suite #312
Berkeley, CA 94710
tel: 510.845.0555
fax: 510.644.2680
email: xinet@xinet.com

Server to the Macs...

Another shining example of SuperCard's excellence.

Allegiant SuperCard 2.5, 1995 MacUser Eddy Award For Best New Multimedia-Authoring Application

Shining examples of SuperCard's excellence abound. Over six years' worth in fact. Thousands of developers around the world have used SuperCard to create incredible interactive multimedia applications — work that has defined the very meaning of the term "multimedia."

Along the way, our developers have won more than their share of awards — even last year's Eddy — and we've been delighted by their success. Of course, we're not above enjoying a little recognition ourselves. So thanks, MacUser, for selecting SuperCard 2.5 as the best new multimedia authoring tool of the year. Rest assured, we won't stop here.

ALLEGIANT

Get to know the award-winning SuperCard. Call (800) 255-8258 or download your free trial version from http://www.allegiant.com/

Copyright © 1996 Allegiant Technologies, Inc. All rights reserved. SuperCard is a registered trademark and the Allegiant "A" logo and logotype are trademarks of Allegiant Technologies, Inc.
The MacUser Editors' Choice Award, The Eddy Award, and the form and likeness of the Eddy statue are trademarks of Ziff-Davis Publishing Company.

ATG

From Page 1

rated into forthcoming products. A new search engine, code-named V-Twin, is part of Cyberdog and may see widespread use as Copland's search engine. Described as an information-access tool kit, V-Twin can distill long text documents into their most salient elements.

Another ATG project, called Calico, is a storyboard application for planning movies. The application features tools for drawing, annotating movies and recording sounds. Calico may be released as a commercial product.

KidSim is an ATG-developed, OOP language that lets children build their own simulations. With KidSim, students can create objects and characters and simulate movements and behaviors.

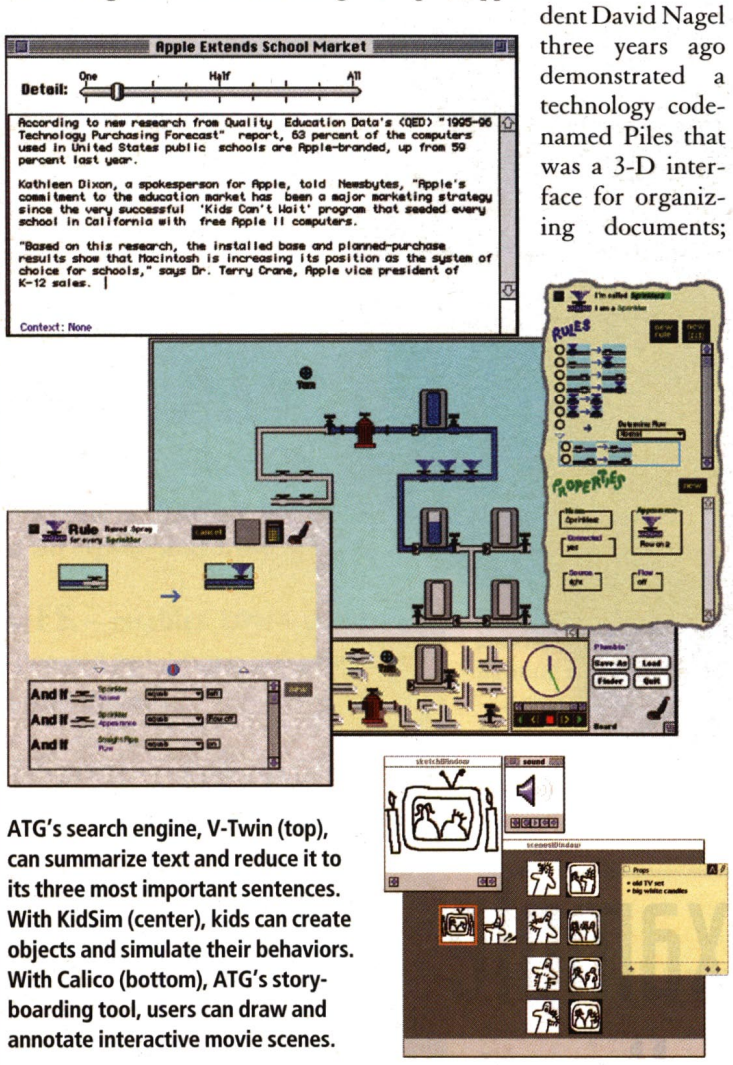
A conferencing tool, code-named Miracle, will also be aimed at the education market. It will let remote users collaborate on tasks over the Internet. Another education project, code-named Dewey, is an overlay for the Mac OS described by one source as "At Ease on steroids." Dewey can be customized for different curricula.

ATG's efforts to provide users with newfangled authoring environments are not solely aimed at education.

SK8 is a multimedia environment sometimes called an object-oriented dynamic authoring language. Built on LISP, SK8 has been rumored to be a future version of HyperCard and the front-end to ScriptX. It was reportedly used to create the first version of KidSim and has been moved out of ATG and into Apple's development-tools group.

While some ATG projects have come to fruition, others have died on the vine. In years past, ATG efforts mostly ended up as fodder for splashy demos by Apple executives. For example, Apple Senior Vice President David Nagel three years ago demonstrated a technology code-named Piles that was a 3-D interface for organizing documents; the project was ultimately killed.

While in the past ATG would typically work on projects for several years, the group has been streamlined to work on hardware and software projects that take less time to develop. Now it is charged with moving technologies out of the garage and into real products. □


Apple Extends School Market
Detail:
One
Half
All
According to new research from Quality Education Data's (QED) "1995-96 Technology Purchasing Forecast" report, 63 percent of the computers used in United States public schools are Apple-branded, up from 59 percent last year.
Kathleen Dixon, a spokesperson for Apple, told Newsbytes, "Apple's commitment to the education market has been a major marketing strategy since the very successful 'Kids Can't Wait' program that seeded every school in California with free Apple II computers.
"Based on this research, the installed base and planned-purchase results show that Macintosh is increasing its position as the system of choice for schools," says Dr. Terry Crane, Apple vice president of K-12 sales.
Context: None
RULES
PROPERTIES
Rule
And If
And If
And If

ATG's search engine, V-Twin (top), can summarize text and reduce it to its three most important sentences. With KidSim (center), kids can create objects and simulate their behaviors. With Calico (bottom), ATG's storyboarding tool, users can draw and annotate interactive movie scenes.

Results

From Page 1

ate at such low profit margins," embattled Apple CEO Michael Spindler said in a memo to employees last week. "Our first order of business is to quickly streamline operations, and a reduction in our work force is a difficult but necessary first step."

Most of the announced layoffs, which affect about 10 percent of the company's employees worldwide, will come from sales, marketing and administration over the next 12 months. Hundreds more job cuts are expected, sources said.

Spindler, whose own job is reportedly safe for now, also drew up a laundry list of what the company needs to do to bounce back: consolidate its product lines; expand its on-line services to the Internet; sign more licensing partners; and strike up business alliances, especially in the multimedia and Internet fields.

Satjiv Chahil, the new head of Apple corporate marketing and communications, said the company intends to pare the current number of Mac configurations to make forecasting easier and to simplify CPU choices for customers. He said Apple will encourage clone makers to make models that fill in the gaps of Apple's product line.

"It's crazy how many [model numbers] we have in the Performa line," he said. "We were trying to be everything to everybody, and it just doesn't work. The real message is just because Apple won't be everything to everyone doesn't mean that the Macintosh platform won't be."

The timing of Apple's loss is particularly bad. Though overall personal computer sales failed to match last year's 30 percent jump, they still far outpaced Apple during the Christmas shopping season, when companies do the bulk of their business.

Although Apple has faced steep challenges before, none may be as precipitous as its latest crisis, according to industry observers. "Apple has its usual problems of forecasting demand, miscalculating inventory and facing the Wintel juggernaut," said Ken Lim, president of The CyberMedia Group of Cupertino, Calif. "But now it appears they're losing mind share among developers."

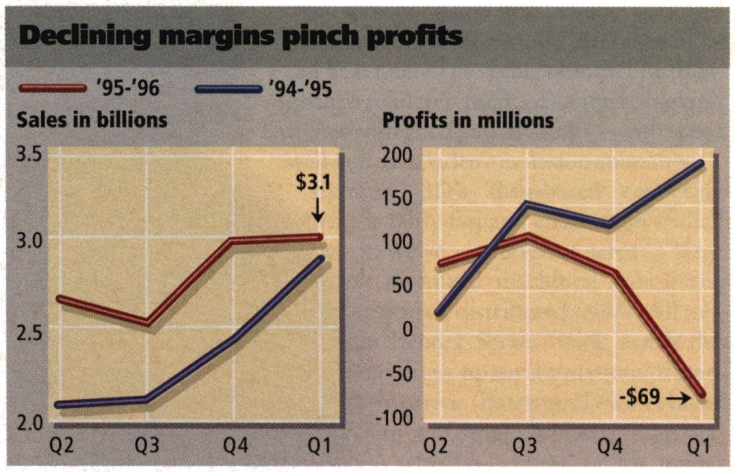
Meanwhile, morale within Apple was as gloomy as the financial news. "Pins and needles," said one employee, describing the tense mood. "It's Black Wednesday."

"The only way Apple has learned to cut costs is to eliminate workers," Lim said. "Unfortunately, they've cut down to the bone."

According to published reports, Apple — which has been pilloried by the press as much as Hillary Rodham Clinton lately — is seeking a chief financial officer and possibly a chief operating officer to offload responsibilities from the beleaguered Spindler.

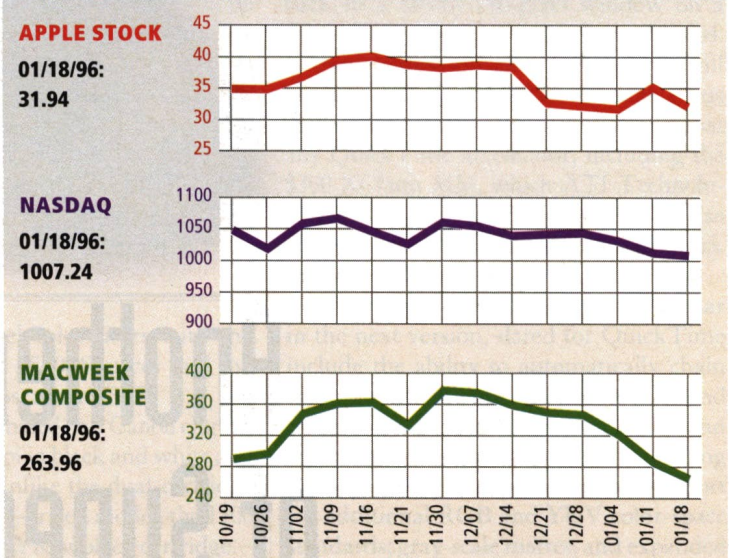
Apple's stock closed at $31.94 per share, down $2.03 on Jan. 18. □

Andrew Gore contributed to this report.



Source: Apple.

StockWatch



	01.18.96 CLOSE	WEEKLY % CHANGE
Apple	31.94	-8.75
MacWEEK Composite*	263.96	-7.23
SOFTWARE DEVELOPERS		
Adobe	35.63	-9.24
Caere	6.75	-8.47
CE Software	2.94	6.82
Graphsoft	5.75	-14.81
Insignia	5.88	-6.00
Intuit	54.25	-12.50
Macromedia	36.75	2.08
Microsoft	87.63	1.15
Novell	13.88	-5.93
Oracle	44.50	6.27
Symantec	10.50	-6.67
STORAGE		
Conner	22.00	0.00
Iomega	36.25	-15.94
Maxtor	6.63	0.00
Pinnacle	14.00	1.82
Quantum	17.50	-2.10
Seagate	50.13	0.00
SyQuest	7.63	-26.51

	01.18.96 CLOSE	WEEKLY % CHANGE
PERIPHERALS VENDORS		
AmeriQuest	0.75	-14.29
Asanté	6.13	-3.92
Focus	5.69	-2.15
Global Village	14.75	-0.84
HP	75.25	-5.49
QMS	5.88	-2.08
Radius	2.06	-8.33
Shiva	59.75	-5.53
Tektronix	42.88	-0.58
Truevision	5.38	7.50
DISTRIBUTORS		
CompUSA	27.00	-10.37
IE	5.88	2.17
Merisel	3.88	-31.11
Tech Data	13.63	5.83
INDUSTRY INDICATORS		
Compaq	44.88	-4.27
IBM	96.25	10.32
Intel	51.00	-10.33
Motorola	50.38	0.50
SGI	26.38	7.65
NASDAQ	1007.24	-0.38

**The MacWEEK Composite is calculated by adding the stock prices of the following companies: Apple, Adobe, Asanté, Caere, CE Software, Global Village, Intuit, Macromedia, Radius, Shiva, SyQuest and Truevision. Source: Nordby International Inc.*

Artbeats ships Web clip art

Artbeats Software Inc. and statmedia last week jointly released clip art for use on the Internet.

Aimed at Web page builders, the $89 Artbeats WebTools CD-ROM contains more than 600 Mbytes of buttons, decorative bars, icons, sounds and backgrounds. It comes with a search engine for locating, viewing and installing items. The button category includes a variety of dials, sliders, toggles and panels.

Artbeats Software Inc. of Myrtle Creek, Ore., is at (541) 863-4429 or (800) 444-9392; fax (541) 863-4547; http://www.artbeatswebtools.com.

statmedia of Anaheim Hills, Calif., is at (714) 280-0038; fax (714) 748-0178; statmedia@eworld.com. □

ZD Net/Mac this week

ZDNet We bid adieu to eWorld

Attention, eWorld users! Beginning Jan. 25, ZD Net/Mac will offer direct links to the MacWEEK and MacUser Web sites. eWorld's current MacWEEK and MacUser areas will be removed, but users will be able to find the same content on our Web sites, including daily news and commentary from MacWEEK, articles and exclusive software from MacUser, and a powerful search engine that can sift though Ziff-Davis' archive of articles from a dozen computing publications.

Where to find us on-line

On eWorld, go to the MacWEEK area at shortcut: macweek. In ZD Net/Mac on CompuServe, you'll find the MacWEEK Forum at go zmc:macweek and the free MacWEEK News menu at go zmc:mwnews. On the Web, please visit our home page at http://www.zdnet.com/~macweek/.

ZIFF-DAVIS PUBLISHING CO.
Chairman and CEO Eric Hippeau

BUSINESS MEDIA GROUP
President Ronni Sonnenberg
Executive Vice President Claude P. Sheer
VP, Magazine Networks Joseph Gillespie
VP, Central Advertising Sales Bob Bader
VP, Product Testing Mark L. Van Name
VPs Don Byrnes, Al DiGuido, Dan Farber, J. Samuel Huey, Michael Miller, Paul Somerson, Jim Stafford
Executive Director, Ziff-Davis Magazine Networks Ellen Atkinson
Managing Director of Ziff-Davis Preferred Customer Program (ZDPC) Lucy Wohltman
Directors, Ziff-Davis Magazine Networks Anne Fitzpatrick, Mark Glasner, Michael Krieger, Jeff Lehman, Kelly Lowman, Melinda Maginn
Marketing Director, Ziff-Davis Magazine Networks Michael Perkowski
Marketing Director, Ziff Davis Magazine Networks/ZDPC Jeff Bruce
Director of Public Relations Brenda Wheeler
Director of ZD Benchmark Operation Bill Catchings
Director of ZD Labs Robert W. Kane

ZIFF-DAVIS PUBLISHING CO.
President, Consumer Media Group J. Scott Briggs
President, Ziff-Davis Marketing and Development Jeff Ballowe
President, Computer Intelligence/InfoCorp Bob Brown
President, International Media Group J.B. Holston III
Senior VP, Circulation Baird Davis
VP, Assistant to the Chairman Tom McGrade
VP, Business Development T.L. Thompson
VP, Circulation Services James F. Ramaley
VP, Corporate Research and Analysis Elda Vale
VP, General Counsel and Secretary J. Malcolm Morris
VP, Human Resources Rayna Brown
VP, Chief Financial Officer Timothy C. O'Brien
VP, Planning Darryl Otte
VP, Marketing and Development Group Herbert Stern
VP, Alliance Marketing Janet Ryan
VP, Marketing Services Jim Manning
VP, Production Roger Herrmann
VP, Technology Bill Machrone
Treasurer Thomas L. Wright
Chief Information Officer Wellington Y. Chiu
Production Director Walter J. Terlecki
Director of Licensing Gertrud Borchardt
Director of Public Relations Gregory M. Jarboe

Products in this issue

COMPUTER-AIDED DESIGN
Yonowat Amapi 12

COMPUTERS & SYSTEM SOFTWARE
Abacus Executor 2.0 4
Apple Dewey 1
Apple Epic, PowerBook 5300 106
Apple LC 575, 580; Performa 6300; PowerBook Duo 280c; Power Mac 7200/75, 7200/90, 7500, 9500 38
Apple Power Mac 8500 30, 38
Apple Power Mac AV, Quadra AV 24
Apple PowerBook 190, Duo 2300c; PowerPC 5300 39
DayStar Genesis MP 38
Power Computing Power 100, Power 120, PowerCurve, PowerWave 38
Radius 81/110 38

DATABASES & DATABASE TOOLS
ProVUE Panorama 16

GRAPHICS HARDWARE
IMS TwinTurbo-128M2 12

GRAPHICS SOFTWARE
Adobe Illustrator, Photoshop 24
Fractal Design Painter 24

GROUPWARE
Netscape Collabra Share 2.1 16

MULTIMEDIA
Abvent Atlantis Render 2.0 12
Adobe AfterEffects, Premiere 24
Adobe Persuasion 71
Aim 21 Aim 21 24
Apple Calico, KidSim 1
Apple QuickTime 1, 24, 34
Avid Elastic Reality, Media Composer, Media Suite Pro, VideoShop, TransJammer 24
Claris ClarisImpact 71
Data Translation Media 100 24
Emotion CreativePartner 24
Gold Disk Astound! 71
Gryphon Dynamic Effects, Morph 24
ImMIX TurboCube, VideoCube 24
Interactive Media Special Delivery 71
Macromedia Director 12, 71
Macromedia Extreme 3D 1
mFactory mTropolis 12
Microsoft PowerPoint 71
Motion Works Multimedia Utilities 24
Nuts MediaFactory 24
Oracle Oracle Media Objects 12
Radius QuickFLIX!, Radius Edit, VideoFusion 1.6, VideoVision Telecast 24
Radius VideoVision 30
Ray Dream Designer 4, Ray Dream Studio 67
Specular Infini-D
Truevision Targa 2000 Pro 24
Valis Group MovieFlo 24
Vicious Fishes Multimedia Tackle Box 12

ON-LINE COMMUNICATIONS
Adobe PageMill 20
Apple Miracle, V-Twin 1
Ardis Ardis 16
Artbeats WebTools 104
Claris Emailer 71
Connectix QuickCam 106
Foresight CalendarSet/CGI 20
Jabra Jabra 68
Lundeen Web Crossing 20
Macromedia Shockwave 4
Main Event Dogpatch 20
Maxum RushHour 20
Natural Intelligence Roaster 20
Open Door Networks Home Door 20
Qualcomm Eudora Pro 71
Progressive Network RealAudio 2.0 4
RAM Mobile Data RAM 16
Tumbleweed Envoy 4
U.S. Robotics Courier I-Modem 16
Vermeer Front Page 4, 20
Web Broadcasting Web FM 2.0 20

ORGANIZATIONAL TOOLS
Big Software Big Business 1.0 67

PRINTERS & PRINTING TOOLS
Apple Color LaserWriter 12/600 PS 106
Apple Color StyleWriter 2250, 2500 1
Digital Equipment Colorwriter LSR 2000 6
GDT PersonalPrint, PowerPrint/LT 3.0, PrintExtras 8
Graphic Utilities PermiDri 8
Working Software printer utilities 8
Xerox paper stacker for Xerox 4900, XPrint 4915, 4920, 4925 8

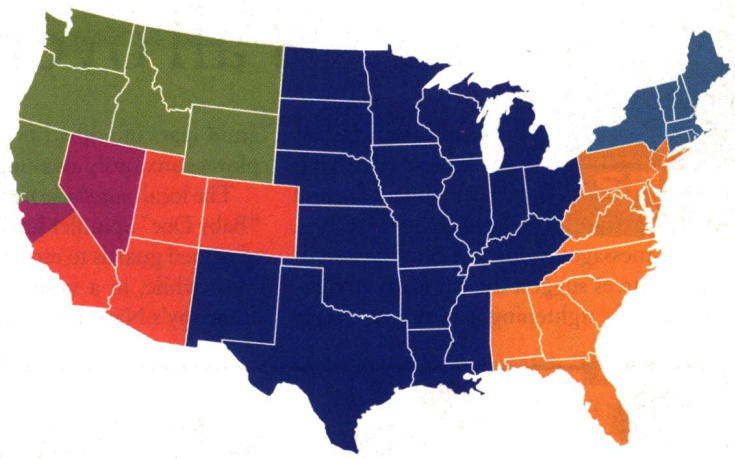
PROGRAMMING/ DEVELOPMENT TOOLS
Allegiant SuperCard 3.0 12
Apple SK8 1
Apple Media Tool, Media Tool Programming Environment 12
Apple/IBM (Kaleida) ScriptX 1.5 12
Novell AppWare 4
Sun Java 12

SCANNERS & OCR
Agfa Horizon Ultra 12
Apple New Orleans, Rio 106
Microtek ScanMaker E3 6

STORAGE
Apple AppleCD 600 71
Iomega Zip battery pack 6
Micropolis Raidion SpeedStack LT4200WAV, LT8600WAV 8

SYSTEM ENHANCEMENTS
Dynamem 128-Mbyte SIMMs 6
Number Nine Imagine 128 12

WORD PROCESSING
Microsoft Word 6.0 71



MacWEEK sales offices

Display ads

Northeast [1]
Sharon Kiernan
District Sales Representative
(617) 393-3060

Mid-Atlantic/ Southeast [2]
Laura Mosier
District Sales Representative
(617) 393-3692

James Loza
Account Executive
(415) 378-5677

John Blake
Group Associate Publisher
(617) 393-3075

MarketPlace
(800) 825-4237

Midwest
Tom Hernandez
District Sales Manager
(312) 214-7343

Dan Hudson
Account Executive
(415) 378-5622

Northwest [3]
Ellen Skugstad
District Sales Manager
(415) 378-5657

Brigid Dombrowski
Account Executive
(415) 378-5658

South Bay [4], Nevada
Chris Marrow
District Sales Representative
(415) 378-5651

Casie Davis
Account Executive
(415) 378-5630

Southwest [5]
Dale Hansman
District Sales Manager
(310) 268-1376

[1] Includes New Brunswick, Newfoundland, Prince Edward Island, Quebec, Manitoba and Ontario, Canada

[2] Includes New York metropolitan area

[3] Includes Northern California north of San Mateo; Alaska; and Alberta and British Columbia, Canada

[4] Includes San Francisco Bay Area south of the San Mateo Bridge to San Luis Obispo

[5] Includes Southern California south of San Luis Obispo, Arizona, Utah and Colorado

Advertiser Index

Allegiant Technologies . . 103
APS Technologies 74-75
ATTO Technology 33
Caere 13
ClubMac 76-77
Connectix 35
CRA 78
Datawatch 19
DayStar 17
Deneba 107
Direct Connections 73
DirecTech 86
Eastman Kodak 70
Epson 10-11
EveryWare Development . . 6
Farallon 5
Focus Enhancements 14
Insignia Solutions 29
InterCon Systems 15
La Cie 79-81
Linotype-Hell 9
The LLB Company 82-83
Lotus Development 27, 43-66
MAC Xtra 85
MacSale International 94
MacTemps 31
MicroNet 108
Microsoft 36-37
Newer Technology 106
Power Computing 2
ProDirect 84
Shreve Systems 97
StarNine Technologies . . . 41
Tahoe Peripherals 89
TechWorks 7
Thursby Software Systems 18
Vicom Technology 8
Viewsonic 22-23
Xinet 102

It's 1984 all over again at Apple

The weather may be better in Cupertino than it is in Bosnia, but the political climate around Apple is getting downright chilly these days. Coded messages from the Knife's intelligence sources suggest the company's reigning junta is tightening security at Apple amid fears of a jihad by rank-and-file employees anxiously awaiting the ax.

The local *mujahadeen* reports that Michael "Baby Doc" Spindler has brought in a squad of armed guards to escort some staffers out. Meanwhile, in a salute to Old Berlin, the company's Napa telecommunications facility now features a wall designed specifically to keep irate *Lumpenproletariat* away from sensitive equipment.

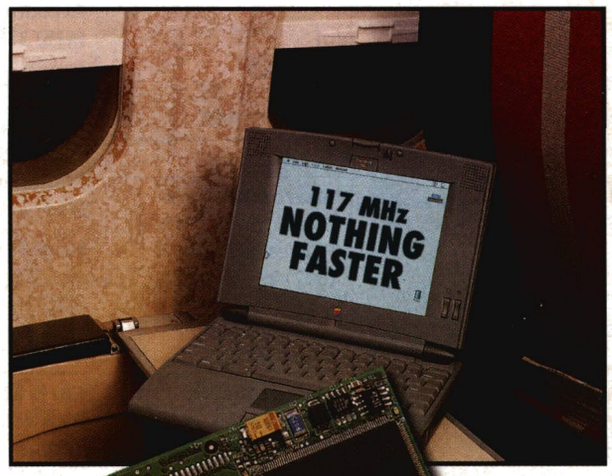
Apple oligarchs weary of labor woes may find solace in the bidding war developing over the company. The board is reportedly mulling over merger and acquisition offers from a variety of companies representing enough continents for a good game of Risk.

NUpowr™

IT UPGRADES YOUR POWERBOOK® 500 TO POWER PC CLASS FOR PEANUTS.

If you're the proud owner of a Macintosh® PowerBook 500 Series laptop, fasten your seatbelt. Because Newer Technology is about to upgrade you all the way to a whopping 117 MHz, the Power PC speed of the PowerBook 5300. For just a fraction of the going price of a new 5300.

How can we make an upgrade offer like this? With the **NUpowr™†** upgrade card, available in three RAM configurations: 0MB, 4MB, 8MB. It's a daughterboard that replaces the 040 CPU in your PowerBook with the new 603e chip that comes in the 5300. So you can upgrade to Power PC performance and still take advantage of your built-in Ethernet and all the system upgrades you've already invested in – like memory, fax/modem and PC Cards.



Plus, if you buy now, we'll give you a trade-in rebate of $80 for your old 040 CPU and throw in Connectix® Speed Doubler™ free. Which will let you run your non-native applications at near Power PC performance. So why not step up to Power PC class? An upgrade offer this good won't even look funny on your expense report.

†Requires System 7.5.x and 2.0 Updater

Bundled with Free Speed Doubler

INTRODUCTORY OFFER
Starting at only $590*.
After $80 Factory Direct Trade-In Rebate on your old 040 processor.
Plus FREE Speed Doubler.

* Prices after Trade-In Rebate

NUpowr 117MHz	0MB	$590
NUpowr 117MHz	4MB	$795
NUpowr 117MHz	8MB	$999

Offer expires June 30, 1996.

Newer™ TECHNOLOGY
WICHITA, KANSAS U.S.A
INNOVATORS IN POWER & PERFORMANCE

PowerBook Upgrades • Docks • PC Cards
Memory Modules • Acceleration • Connectivity

1-800-678-3726
316-685-4904 • Fax: 316-685-9368
e-mail: sales@newertech.com
Website: http://www.newertech.com

INGRAM MICRO

Will accelerate for food

And speaking of troubled Third World countries, Radius continues to twist slowly in the wind. The Knife's suggestion last week that Radius sell off its bathroom fixtures seems to have met with approval among the company's seats of power. The pipeline to Sunnyvale suggests that Radius has been attempting to barter with its creditors in lieu of cash. Of course, trying to call for support on these warehoused goods may be as difficult as reaching a plumber over the weekend.

Can't stop Connectix

Does all this talk of Radius crashing and Apple burning make Redmond sound like the land of milk and honey? Connectix is looking to ease the exodus to Windows with new emulation software; the Knife expects this forthcoming SoftWindows killer to offer performance that will rival a Pentium-based system. Connectix is also shoring up its hardware arsenal with a color version of its popular QuickCam video teleconferencing thingamabob. Keep your eyes peeled for a $300 model sometime this summer.

Raw power

Just when you thought you'd heard the last of Power Computing's clone efforts, the company comes up with a new maneuver. This time, it's bringing in the big guns: multiprocessor Mac upgrade cards due to ship this quarter. The daughterboards will pack two 601 or 604 chips each, and Power will be hitting the road with Metrowerks when the erstwhile Quebecois finish the multiprocessor version of their compiler.

New ammo from Apple

While Spindler and Co. flee to the bunkers, the foot soldiers of Apple product development march ever onward.

It won't make it in time for the Tet shopping season, but Apple is looking at March for its first foray into flatbed scanning since 1993. The new model, code-named Rio, will cost about $600 and capture 300 by 600 dpi. A jazzier 600-by-1,200-dpi scanner, code-named New Orleans and expected to cost about $850, has been rolled back to July.

Meanwhile, on the laptop front: Apple may have taken a pounding after users found its PowerBook 5300 doubled as a flamethrower. However, the Knife's sources have high hopes for the company's next round of portables. According to reports from the engineering trenches, the new PowerBook series, code-named Epic, is proceeding apace and fills most of the chinks in the current models' armor. Look for them to displace the 5300 clan in July.

The 5300 may be hot, hot, hot, but the Apple Color LaserWriter 12/600 PS has failed to catch fire in the market. The Knife's informants say Apple has asked Canon to put the brakes on building new engines. □

Spindler knows 100 ways to take down a man with a MacWEEK mug; you can be No. 101. Call (415) 243-3544; fax (415) 243-3651; mac_the_knife@macweek.com.

FOR A DESIGNER OR ILLUSTRATOR THE ONLY TOOL MORE IMPORTANT THAN CANVAS™ 5 IS THE COFFEE MACHINE.

THE BEST OF

ILLUSTRATOR™

FREEHAND™

QUARKXPRESS™

& PHOTOSHOP™

We who put words and images on paper for a living have lots of reasons to be profoundly thankful for the new Canvas 5.

Not only does Canvas 5 include all the features that have long made it the program of choice for technical illustrators, it now combines the major functions of Illustrator™, FreeHand™, QuarkXPress™ and Photoshop™. An awesome array of tools for illustration and page design. Typography and publishing. Photo design and image editing. Wrapped around a radically simplified, intuitive interface.

It's quick. It's easy. It's complete.

Now, for the first time you can stay with a single program from concept to comp to illustration all the way through to color separations and pre-press.

Canvas 5 has the potential to turn our 16 hour work days into 12 hour days (while making our stuff look better). Excellent. Now maybe we can have a life.*

SAVE TIME. SAVE A LITTLE MONEY, TOO.

Canvas 5 will cost $599. But if you buy Canvas 3.5 right now, you can get acquainted with the program and get a free upgrade to Canvas 5 when it comes out later this fall. Want more info? Call **800-6-CANVAS EXTENSION 2**

CANVAS

IT'S WHAT THEY'LL THINK OF NEXT.

Mac OS

TECH SPECS

FOR DESIGNERS

• All the standard illustration tools • precision to 0.5 micron • calligraphic pens • path-editing shortcuts include punch, mix & transparency • on-screen rotation & skewing in 0.01° increments • direct selection & editing within groups • automatic object re-blending • central-

ILLUSTRATORS

ized ink controls apply colors, gradients, hatches, raster & vector textures to strokes, fills & text • warp objects with 20 pre-defined templates • create standard color tints (10%, 20%, etc.) and custom colorizing tints from any base color • multi-color linear, radial & directional gradients • transform

ART DIRECTORS

2D objects into 3D with light source control • calibrated CMYK colors • digital "swatch" book • gamut warning indicator • line joins & end caps • zoom from 3% to 3200% in 0.01% increments • drag-and-drop between documents • use vector-based objects (including text) as

IMAGE EDITORS

arrowheads • interruptible screen redraws • autotrace scanned images • 38.5' by 38.5' pasteboard • unlimited undo & redo • font sizes from 2 to 720 points in 0.1-point increments • kerning & tracking • drop caps • paragraph-level formatting • indents, margins & column

AND DTP-ERS.

guides • text wraps • column-to-column text flows • left, right, center, decimal & comma tabs • letter & word spacing, hyphenation, last line, ragged width, widow & orphan controls • convert Type 1 & TrueType™ fonts to outlines • automatic font mapping • 100,000-word spell checker • floating Toolbox controls • TruMatch™ & PANTONE® spot or process colors • color separate any graphic element, including CMYK TIFFs • specify, separate & print spot, process or color tints • color calibration • UCR & GCR • object-level overprinting • moiré elimination • transition effects between presentation slides • floating layers palette • edit bitmap, grayscale, duotone, indexed color, RGB & CMYK TIFF images • 24 alpha channels • feathered-edge selections • quick masks • magic wand • multiple rectangular & elliptical lassos • soft-edged brushes • pressure-sensitive tablet support • clone & rubber stamp • dodge & burn • selectively saturate & desaturate color • smudge, sharpen & blur • color balance, hue, saturation, brightness, contrast & gamma controls • image sharpening, softening, stylizing, distortion & noise filters • live previews • compatible with all Photoshop plug-in filters • TWAIN scanner support • device-independent CIE LAB color space • 2,000 typefaces (both TrueType™ & Type 1) & 20,000 color clipart images on CD-ROM • extensive I/O support including: Adobe™ Illustrator 5.5, Adobe Photoshop 3, EPSF, XPress DCS, TIFF (RGB & CMYK), Kodak™ Photo CD, MacDraw® Pro, PICT, TARGA, JPEG, IGES, CGM, DXF™, QuickTime™, HPGL, CorelDRAW™ 5, Designer™ 4, Windows™ Bitmap & Metafile, WPG, Plain Text, Microsoft™ Word, Rich Text (RTF) & MacWrite® Pro and more.

DENEBA SOFTWARE

*Naaahh. © 1995 Deneba Software, 7400 S.W. 87th Avenue, Miami, FL 33173. Phone: (305) 596-5644. Fax: (305) 273-9069. Canvas is a trademark of Deneba Systems, Inc. Illustrator and Photoshop are trademarks of Adobe Systems, Inc. FreeHand is a trademark of Macromedia, Inc. QuarkXPress is a trademark of Quark, Inc. All other trademarks and registered trademarks are the property of their respective holders.

Introducing The Largest Recording Family Since The Osmonds.

We've assembled quite a group. You see, nobody makes more CD recorders in more configurations, with more features, a longer warranty or lower price than MicroNet. In fact, we offer today's broadest line of CD recorders including both 2X and 4X versions. Our 2X version is now being offered at an incredibly low $1,195 SRP—the lowest priced CD recording solution on the market. For professional applications we even offer CD mastering stations with built-in SyQuest®, MO and hard drives in addition to DataDock CD-R modules. Like all of our CD recorders, they feature Astarte's Toast™ CD-ROM software for unrivaled recording convenience. And, for a limited time, all MicroNet CD recorder purchases will include Disc-to-Disk™, Optical Media's audio CD recording software—a $99 value. Sound good? Well it is.

2 YEAR WARRANTY

7/24 TECH SUPPORT

MicroNet products are second to none. And, with customer support seven days a week, 24 hours a day, our service doesn't play second fiddle to anyone either. Need more convincing? Simply call toll-free 1-800-650-DISK or contact your nearest MicroNet reseller to start recording your own classics.

MicroNet

MicroNet Technology, Inc., Irvine, California (714) 453-6100, http://www.micronet.com

All Trademarks, Registered Trademarks and Logos are of their respective holders. Available on GSA schedule, call 800-800-DISK or send e-mail to GSAINFO@micronet.com